TOWN OF LLOYD, NEW YORK,
ZONING BOARD OF APPEALS

Bruce Epperson,	)	
	)	July 28, 2026
Appellant.	)	
	)	Direct correspondence to:
	)	Bruce Epperson
v.	)	P. O. Box 1020
	)	Highland, NY 12528
David Barton, in his official capacity as Building, Planning and Zoning Officer for the Town of Lloyd, New York,	)	
Appellee.	)	

APPEAL OF ADMINISTRATIVE ZONING DETERMINATION BY THE TOWN OF LLOYD DIRECTOR OF BUILDING, PLANNING AND ZONING

Introduction

Appellant Bruce Epperson appeals a written zoning determination made by Town of Lloyd Building, Planning and Zoning Official David Barton on July 8, 2026 that a proposed cement batch plant at 3260 Highway 9W (SBL: 80.3-2-8) is a permitted use pursuant to the town's zoning code. Mr. Barton asserts: 1) the proposed use meets the definition of "Light Industry" as set forth in section 100-08(108) of the Town of Lloyd zoning code [definition of "Light Industry"], and 2) such "Light Industry" land uses are permitted in the town's LI (Light Industrial) zoning districts, contingent only upon site plan approval by the town's planning board.[1]

The Appellant agrees that the proposed site is zoned LI ("Light Industrial") in the town's official zoning map, but maintains that the proposed facility does not reasonably meet the definition of "Light Industry" as stated in section 100-08(108) of the zoning code. Because a cement batch plant is not a "Light Industry," nor is it among the specifically enumerated types of businesses and uses listed in the zoning code's table of uses as a permitted use in the LI (Light Industrial) zoning districts it is, pursuant to the provisions of section 100-12 of the town's zoning code, prohibited within the town's LI (Light Industrial) zoning districts.

[1] David Barton, *Determination: Concrete Batch Plant as a Light Industry Use* (Town of Lloyd Building Department, July 8, 2026). [Tab 1]

The Appellant further asserts that a procedure that administratively approves, within the LI (Light Industrial) zoning districts, any and all land uses conforming to the definition of "Light Industry" in section 100-08(108) of the zoning code (a business engaged in manufacturing or similar activities, but only if the business is deemed by the Building, Planning and Zoning official not to emit "objectionable levels" of various adverse impacts) illegally circumvents the special use permit process and the notice, comment and public hearing protections in NY Town Law section 274-b and section 100-40(B) of the Town of Lloyd Zoning Code.

Jurisdiction

1. This is an appeal to the Town of Lloyd Zoning Board of Appeals to overturn an administrative zoning determination made by the town's Building, Planning and Zoning Official.
2. Section 100-56(B) of the Town of Lloyd Code of Ordinances gives the town's Zoning Board of Appeals those powers granted by the State of New York in Town Law §267-b.
3. Section 267-b(1) of New York Town Law provides that a town zoning board of appeals:

> " . . .may reverse or affirm, wholly or partially, or may modify the order, requirement, decision, interpretation or determination appealed from and shall make such order, requirement decision, interpretation or determination as in its opinion ought to have been made in the matter by the administrative official charged with the enforcement of such ordinance or local law . . ."

Standing

a) *Standing as an aggrieved party*

4. Section 267-a(4) of New York Town Law states that any order, requirement, decision, interpretation, or determination made by an administrative official may be appealed to a zoning board of appeals by any person aggrieved.
5. To be an "aggrieved person" normally requires a showing that a person has been personally and adversely affected by an administrative zoning determination. In the Matter of Douglaston Civic Assn., Inc. et. al. v. Galvin, 36 N.Y.2d 1, 5 (N.Y. 1974). Although it is the local official who is charged with enforcing the locality's zoning

ordinance, this does not prevent another who suffers special damages from maintaining an action to seek enforcement of the zoning code. Little Joseph Reality, Inc. v. Town of Babylon, 41 N.Y.2d 738, 741-42 (N.Y. Ct. App. 2nd Dept. 1977).

6. Zoning ordinances are a proper exercise of the police power and are enacted to protect the health, safety and welfare of the community. Town of Lloyd Code of Ordinances § 100-5; In re: Sun-Brite Car Wash, Inc. v. Board of Zoning and Appeals of the Town of North Hampstead, 69 N.Y.2d 406, 413, 508 N.E.2d 130 (N.Y. 1987).

7. Standing principles "which are, in the end, matters of policy, should not be heavy handed" (In re: Sun-Brite Car Wash, Inc., 69 N.Y.2d 406, at 413), and they should not be applied in an overly restrictive manner where the result is to completely shield a particular administrative action. Assn. for a Better Long Island, Inc. v. New York State Dept. of Environmental Conservation, 23 N.Y.3d 1, 8 N.E.3d 188 (N.Y. 2014).

8. In the zoning context context, "special damages" denotes an adverse impact, different in kind and degree, from that experienced by the community generally. In the Matter of Colella v. Board of Assessors of the County of Nassau, 95 N.Y.2d 401, 410, 718 N.Y.S.2d 268, 741 N.E.2d 113 (N.Y. 2000).

9. The Appellant can demonstrate special damages sufficient to establish standing to be heard before the town's zoning board of appeals.

10. The Appellant is the owner and resident of a home at 314-316 Bellevue Road in the Town of Lloyd. See: In re: Manner Woods Assn. v. Zoning Board of the Town of Greenburgh, 29 A.D.2d 778 (N.Y. App. Div. 2nd Dept. 1968). (Property ownership normally required to qualify as "aggrieved.") This property is 3,430 feet from the site of the proposed cement batch plant.

11. Mr. Epperson's home relies upon well water for potable and domestic use. It is located in a semi-rural residential area on a town street.

12. The proposed cement batch plant will use 10,000 gallons per day of water. This is equal to a 40-unit apartment building. It amounts to a withdrawal of 21 gallons per minute for 8 eight hours per day for 250 days per year to be supplied from the same aquifer as that

used by the Appellant's home.[2] At the projected rate, the proposed batch plant will have a measurable drawdown impact on the aquifer at a radius of 5,000 feet within ten years of commencing activity.[3]

13. The Appellant's home and property will therefore likely incur an impact that the public at large will not suffer.

14. Staff review comments by the Town of Clifton Park, New York, of an nearly identical cement batch plant proposed by the same applicant, as well as another, earlier project the applicant proposed in the town of Clay, New York referred to a recent scholarly journal article which concluded that PM10 airborne article emissions from cement batch plants (both from the operation of the plants themselves and from the operation of diesel engines) posed an measurable asthma risk at distances greater than 700 meters (2,300) from the source.[4]

15. A noise impact study of an essentially identical cement batch plant in the Town of Clifton Park, NY[5] indicated that the proposed batch plant can be expected to generate 89.3 decibels of noise. At 1,907 feet, estimated noise was 50.6 decibels. Ambient background noise was stated as 67.8 decibels because the only measurements were taken at the entry to the site, along a busy highway. Ambient noise at the site of the Appellant home, situated on a quiet rural road, is less than 40 decibels.

16. Therefore, comparative measurements taken at an exemplar cement plant owned and operated by the applicant for the proposed Town of Lloyd facility indicate a high probability that the Appellant's home will be adversely impacted by increased noise generated by the cement plant.

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[2] *Project Narrative: 3260 NY Highway 9W Highlane* [sic] *NY LLC, March 10, 2025*, at 4 [Tab 2]; *Full Environmental Impact Form, Light Industrial Batch Concrete Plant, 3260 Route 9W, Town of Lloyd, April 20, 2026*, at 4. [Tab 3]

[3] Fred Kunkel, *Time, Distance and Drawdown Relationships in a Pumped Ground-Water Basin* (Washington: Department of the Interior, 1960) Geological Survey Circular 433. [Tab 4]

[4] See: Town of Clifton Park Project File Packet, File 25-000392 (2025-017, 1910 US Route Commercial Buildings; Concrete Batch Plant), at 18. [Tab 5] The journal article in question is: Shizuka Hsieh, et. al., "Asthma and Particulate Matter Pollution: Insights From Health Survey and Air Quality Monitoring in the Buzzard Point, Washington, DC Neighborhood," *Environmental Justice* 14, 4 (2021): 254-266. [Tab 6]

[5] Strategic Mining Solutions, *1910 Route 9 Clifton Park LLC Concrete Batch Plant: Noise Impact Study, September 25, 2025*. [Tab 7].

17. In conclusion, Appellant Epperson can demonstrate a well-reasoned fear of injury-in-fact resulting from the zoning interpretation by the Building, Planning and Zoning Officer. This particularized injury originates from 1) The Appellant's ownership of property; 2) The Appellant's residence in the Town of Lloyd; 3) Proximity to the site of the proposed cement batch plant; 4) Probable damage to the Appellant's residential water supply resulting from excessive wellwater withdrawals of a shared aquifer; 5) Probable damage from PM2.5 and PM10 particulate emissions from both the batch plant itself and associated diesel engine operations; 6) Damage to from excessive noise generated at the site, as measured from a current baseline of less than 40 decibels at Mr. Epperson's home.

b) *common-law standing*

18. Common-law standing exists where the failure to otherwise deny standing would effectively erect an impenetrable barrier to any scrutiny of government action. Boryszewski et. al. v. Brydges, 37 N.Y.2d 361, 364, 334 N.E. 2d 579 (N.Y. 1975). Although originally applied to legislative actions, it is applicable to the decisions of local government officials if there is "appreciable public significance beyond the immediately affected parties," In the Matter of Colella, 95 N.Y.2d 401, 410-411, or if the issues are "fundamental and of immense public interest," including "claims of institutional harm." Saratoga County Chamber of Commerce et. al. v. Pataki et. al., 100 N.Y.2d 801, 814, 798 N.E.2d 1047 (N.Y. 2003).

19. Rule A107-6(B) of the Town of Lloyd Zoning Board of Appeals, within the Town of Lloyd Code of Ordinances, requires that an appeal of administrative decision be made within 30 days of the action of the administrative official appealed from.

10. Rule A107-6(B) conflicts with New York TWN §267-a(5)(b), which permits appeals of administrative decisions to town zoning boards to be filed within 60 days after an interpretation or determination of an administrative official is filed. This is an impermissable restriction of the zoning board's authority, as a town may not restrict the appellate jurisdiction of its zoning board of appeals to less than that granted in state statutes. N.Y. Op. Atty. Gen. 2004-04.

12. Where a violation of procedural statutes deprives one of an adequate airing of the relevant issues and impacts of the proposed action, the alleged violations, including the depravation of an opportunity to be heard, *itself* constitutes an injury to a petitioner or petitioner within the scope of sought to be protected by the statute. Assn. for a Better Long Island, Inc. v. New York State Dept. of Environmental Conservation, 23 N.Y.3d 1, 8, 11 N.E.3d 118 (N.Y. 2014); In re: Hars Enterprises v. Town of Brookhaven, 74 N.Y.2d 524, 529 (N.Y. 1989).

13. Appellant Bruce Epperson therefore has common-law standing to assert a status as a "person aggrieved" by the April 2 zoning determination of the Building, Planning and Zoning Official and is entitled to bring forth this appeal as provided for under New York Town Law and the Code of Ordinances of the Town of Lloyd based both on the substantive nature of the issues involved and the procedural irregularities in the Town of Lloyd zoning code regarding deadlines required of aggrieved parties filing an appeal with the town's zoning board of appeals.

14. Finally, the circumstances behind this particular controversy – a dispute over whether an industrial facility producing construction materials is properly sited in a town with fewer than 15,000 residents – raises a question whether the standard "special harm" test is meaningful or fair, as New York Justice Hancock pointed out in 1991:

> Under this rule, as the majority explains it, having failed to allege any threat of cognizable injury it would suffer, different in kind or degree from the public at large, lacks standing . . . clearly, where the extent of the environmental injury diminishes with distance from the proposed action, the "special harm" requirement makes sense and works. Where, however, the alleged injury is essentially the same over a wide area, the rule does not work. For if a resident's environmental damage is essentially the same as that of the neighbors' the resident can hardly show injury "different in kind or degree" from the public at large. A simple hypothetical may put the question into focus. Suppose a town passes a local law permitting all of the residents to throw their garbage in the streets. Everyone in the town could allege environmental harm from all the deleterious consequences but the same harm would be shared by all. Would no one have standing? (*Society of the Plastics Industry, Inc. et. al. v. County of Suffolk, et. al.*, 77 N.Y.2d 761, at 780, 783, 573 N.E.2d 1034 (N.Y. 1991) (Hancock, J., dissent).

Timeliness

13. Section 267-a(5)(b) of New York Town Law states that any order, requirement decision, interpretation, or determination made by an administrative official may be appealed to a zoning board of appeals within 60 days after said official act is rendered. The zoning determination in question was issued on July 8, 2026. Therefore, this appeal is timely.

Facts and Averments

14. On July 14, 2025, 3260 Route 9W Highland, NY LLC, with offices at PO Box 189, 248 Watervliet Shaker Road, Colonie, New York, purchased a 4.82 acre parcel at 3260 Route 9W in the Hamlet of Highland, Town of Lloyd, New York.

15. "3260 Route 9W Highland NY LLC" is owned by Luke Clemente, who is also a principal in two New York corporations, Bonded Concrete, Inc. and Clemente Materials, Inc.

16. The site is approximately 4.8 acres and is in the shape of a rhomboid approximately 530 feet north-south and 410 feet east-west.[6] The proposed facility itself is in the approximate center of the site. The east boundary of the property fronts onto Highway 9W. The west boundary of the site backs onto environmentally protected lands owned and maintained by Scenic Hudson, Inc. The north boundary is adjacent to an active light industrial use and the south boundary abuts vacant land. There are six residential homes within one half mile of the site.[7]

17. On March 6, 2026, "3260 Route 9W Highland NY LLC" applied for a site plan approval for a 4,600 sq. ft. concrete batch plant, with associated aggregate piles and conveyor system at the north Highway 9W location.

18. A concrete batch plant is a facility for blending powdered cement, water, aggregates, and liquid additives into slurry cement, which is then loaded into trucks for delivery.[8] Trucks

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[6] See Tab 8 (Conceptual Site and Grading Plan, June 11, 2026).

[7] The six residential homes are: Holmes-Masi house: 704 ft.; DiMetro house: 1,177 ft.; Hidden Gems LLC house and B&B: 1,247 ft.; Soletis house: 1,669 ft.; Page-Piscopo house: 2,169 ft., Williams Fruit Farm house: 2,174 ft.

[8] United States Environmental Protection Agency, *Rules Concerning the Processing of Applications and Other Administrative Matters*, Chapter 164 (General Permit for Concrete Batch Plants) (2025). See also: *Project Narrative: 3260 NY Highway 9W Highlane* [sic] *NY LLC, March 10, 2025*, passim. [Tab 2]

returning from deliveries are also rinsed and the liquid wastes generated from the washout process are separated and prepared for disposal. A description of the process proposed for use was provided by the applicant in the form a project narrative accompanying the application.

19. Section 42-4(A) of the Town of Lloyd Code of Ordinances requires the town's Building Department Director to make an initial determination as to whether a proposal delineated in an application is in compliance with the town's zoning code. Section 42-4(B) prohibits any town official from granting an approval on a zoning application without such a written determination. Because planning board members are town officers under New York State Law, (NY Town Law §271; NY Public Officers Law §3, Opns. St. Comp. Gen. 89-46) planning board members are prohibited under the Town of Lloyd Code of Ordinances from approving a site plan application until the Building Official issues a written determination.

20. On July 8, 2026 the town's Building, Planning and Zoning Official issued a written determination. It concluded: 1) the closest classification in the town zoning code's table of uses describing the applicant's proposed use is "Light Industry." 2) The proposed cement batch plant, absent negative impacts heretofore unknown or unacknowledged, met the criteria for "Light Industry" in the LI (Light Industrial) zoning district and was thus a permitted use.

ONE: THE BUILDING, PLANNING ANG ZONING OFFICAL'S DETERMINATION IS ACTUALLY AN ADMINISTRATIVELY APPROVED SPECIAL USE PERMIT AND ILLEGALLY CIRCUMVENTS THE PROCEEDURE FOR APPROVING SPECIAL USE PERMITS ESTABLISHED IN STATE STATUTES AND THE TOWN OF LLOYD CODE OF ORDINANCES

21. The definition of "Light Industry" in section 100-8(108) of the Town of Lloyd Zoning Code is:

> Light Industry: Manufacture, assembly, treatment, processing or packaging of products that does [sic] not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries.

22. This definition was added to the zoning code in response to a recommendation in the 2005 Comprehensive Plan to "Adopt *special use permit provisions and design standards* for light industry."

> Light industries are generally not objectionable because they do not generate excessive noise, truck traffic, fumes or other nuisances. Light industry should have a minimal negative impact on neighbors or on the natural environment. Some examples of light industries include research facilities, professional offices, small manufacturing, and high tech firms . . . special use permit provisions should be adopted to protect to protect natural resources from potential impacts of light industrial facilities.[9]

23. A "special use permit" is defined by the State of New York in Town Code §274-b(1):

> Definition of special use permit: As used in this section, the term "special use permit" shall mean an authorization of a particular land use which is permitted in a zoning ordinance or local law, subject to requirements imposed by such zoning ordinance or local law to assure that the proposed use is in harmony with such zoning ordinance or local law and will not adversely affect the neighborhood if such requirements are met.

24. Section 274-b(2) of New York Town Law permits local town boards to delegate the authority to approve special use permits to a town planning board. The Town of Lloyd has done so in §100-40(B) of its zoning code.

25. Section 274-b(6) of New York Town Law requires that a special use permit can be issued only after a public hearing is held by the delegated board, subsequent to notice being given to the public of this hearing.

26. Entitlement to a special use permit (previously referred to as a special exception) is not a matter of right. Matter of Lemir Reality Corp. v. Larkin, 11 N.Y.2d 20, 24, 181 N.E.2d

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[9] *Town of Lloyd 2005 Comprehensive Plan*, §8-2 and Recommended Task 145 (p. 12-19). [Tab 9]

407 (N.Y. 1962) An applicant for a special use permit must establish compliance with the conditions set forth by a community in its ordinances. Matter of Tandem Holding Corp. v. Board of Zoning Appeals of the Town of Hempstead, 43 N.Y.2d 801, 802 (N.Y. App. 1977).

27. The Town of Lloyd has set forth these standards in §100-40(B) and (C) of its zoning code. These include the requirement that all conditions and standards contained in §100-40(B) and (C) must be met, a public hearing, and conformity with the site plan and design criteria within the town's zoning code.

28. The Building, Planning and Zoning's Official's July 8 determination concludes that *all* land uses conforming to the first part of the definition of "Light Industry" (firms engaged in the "manufacture, assembly treatment, processing, or packaging of products") are permitted uses in the LI (Light Industrial) zoning *but only if* they adhere to the second half of the definition (they do "not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries").

> . . .the Building department finds that the proposed concrete batch plant satisfies the definition of Light Industry. Wet concrete is a product, batching the constituent materials to create it is a form of manufacture and processing. Based on the mitigation measures described by the applicant—including dust collection and depressurization at the cement transfer point, a sealed delivery chute the truck loading point, and substantial enclosure of mechanical equipment within the structure—the Department further finds that a concrete batching plant designed to protect against objectionable levels of smoke, noise, dust, odor, glare or vibration beyond the property boundaries would not violate the definition.[10]

29. In making this determination, the Building, Planning and Zoning Official duplicated the special use permitting process criteria mandated in state statutes and town law, but without satisfying the notice, comment, public hearing, and other due process protections contained in those statutes and laws. In effect, the Building, Planning and Zoning Official created his own administrative special use permit scheme.

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[10] Barton, *Determination: Concrete Batch Plant as a Light Industry Use*, op. cit. footnote 1, [Tab 1].

30. While the classification of a particular use as permitted in a zoning district is tantamount to a legislative finding that the use is in harmony with the general zoning plan and will not affect surrounding neighborhoods, North Shore Steak House v. Thomaston, 30 N.Y.2d 235, 243 (N.Y. 1972), the designated board still retains some discretion to evaluate each application to determine whether the applicable criteria set have been met and to make common sense judgments in deciding whether a particular application should be granted. In the Matter of Twin County Recycling Corp. v. Yevoli, 90 N.Y.2d 1000, 1001, 688 N.E.2d 501 (N.Y. 1997).

31. In this case, no special use permit application was sought or received from the applicant. No public hearing was held and no testimony or documentation was solicited from the community at large. The specific criteria outlined in sections §100-40(B) and (C) of the Town of Lloyd zoning code were not applied. The town's zoning board of appeals was given no chance to evaluate the application, compare it to the criteria established in town law, and make their own common sense judgments. The Building, Planning and Zoning Officer's determination contained no data and no analysis beyond conclusory statements that nuisances such as noise, smoke, glare odor and vibration are not expected to be objectionable "beyond the property line." This is incompatible with the criteria contained in the town's ordinance, which requires special use permits to be considered on the basis of:

> The location and size of the use; the nature and intensity of the operations involved in or conducted in connection with it; the prevailing character of the neighborhood within the district; the public health, safety and welfare; the size of the site in relation to it; and the location of the site with respect to streets giving access to it are such that it will be in harmony with the appropriate and orderly development of the district in which it is located.[11]

32. In summary, the Building, Planning and Zoning Official's determination is an attempt to circumvent the legal, established special permit process by substituting vague blandishments, conclusory statements and unsubstantiated opinions for hard data and specific findings of fact and law.

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[11] Town of Lloyd Zoning Code, §100-40(C)(1).

TWO: THE WRITTEN ZONING DETERMINATION THAT THE PROPOSED CONCRETE BATCH PLANT WILL NOT EMIT "OBJECTIONABLE" LEVELS OF SMOKE, NOISE, DUST, ODOR, GLARE OR VIBRATION IS ARBITRARY AND CAPRICIOUS BECAUSE IT TREATS SIMULARLY SITUATED CITIZENS OF THE TOWN OF LLOYD DIFFERENTLY DEPENDING ON THEIR STATUS AS LANDOWNERS OR RESIDENTS

33. The definition of "Light Industry" in section 100-8(108) of the Town of Lloyd Zoning Code is:

> Light Industry: Manufacture, assembly, treatment, processing or packaging of products that does not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries.

34. The current zoning code was adopted by the Town of Lloyd in 2008. It relied upon "Euclidean" zoning (also called "as-of-right" zoning" or "district-and-table" zoning), where a municipality is divided into geographic zones, and permissible land uses in each district are specified in the form of a supplemental table."[12]

35. Any land use or type of business not specifically enumerated in the Town of Lloyd's table of uses as a permitted use in a given zone (or district) is prohibited, as required by section 100-12(A) of the town's zoning code:

> The allowable uses in each zoning district are set forth in the Use Table, which appears at the end of the chapter. This schedule is complemented, as appropriate, by other provisions of this chapter. Uses that are not listed are prohibited.

[12] For more information, see: American Planning Association, *A Planners Dictionary* (Washington, DC: APA, 2004): *q.v.* "Euclidian zoning"; "as-of-right zoning." Note that "Euclidian zoning" has nothing to do with geometry; it is named after the Town of Euclid, Ohio, where a historic legal case, *Euclid v. Ambler Reality*, was decided.

36. The new zoning code was based on the then-current 2005 Comprehensive Plan. One of the recommendations of the comprehensive plan was that attracting light industries should be encouraged:

> Light industries are generally not objectionable because they do not generate excessive noise, truck traffic, fumes or other nuisances. Light industry should have a minimal negative impact on neighbors or on the natural environment. Some examples of light industries include research facilities, professional offices, small manufacturing, and high tech firms . . . special use permit provisions should be adopted to protect to protect natural resources from potential impacts of light industrial facilities.[13]

37. In June 2013 the town adopted Local Law 4-2013 establishing the Walkway/Gateway zoning district. The law permitted "light industry" (as defined in §100-8 of the town's zoning code) in the WG/GC subdistrict of the Walkway/Gateway zoning district.[14]

38. However, a series of impact criteria was established that any business or land use proposed for the Walkway/Gateway zoning district had to meet to receive site plan approval. These included an extensive set of supplementary standards contained in section 100-38(C) of the town's zoning code. This included the exclusion of land uses considered "high-impact":

> "Light industrial uses deemed to be high-impact uses are expressly prohibited. High-impact uses include industrial or manufacturing processes engaged in the production of any products classified under the following North American Industry Classification (NAIC) 2007 system code numbers . . . **Cement and Concrete Manufacturing (3273)** . . ."

39. Thus, "cement and concrete manufacturing" uses are automatically excluded in the Walkway/Gateway district, but are allowed in the LI (Light Industrial) district as a general "light industry" use if deemed to "not omit objectionable levels" of commonly recognized pollutants and/or nuisances. This is acknowledged in the text of the Building, Planning and Zoning Official's July 8, 2026 zoning determination:

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[13] *Town of Lloyd 2005 Comprehensive Plan*, §8-2 and Recommended Task 145 (p. 12-19).
[14] Town of Lloyd Local Law 4-2013, §7; Town of Lloyd Zoning Code §100-38(C). [Tab 10]

> . . . that use [cement and concrete manufacturing] is excluded from the Walkway Gateway Zone specifically. That exclusion makes sense given that the Walkway Gateway District is designated to be a pedestrian-friendly zone with mixed uses that act as an extension of the traditional downtown area known as the Hamlet of Highland. The Walkway Gateway District imposes a categorical, mitigation-blind prohibition on certain Light Industrial uses because it is a special pedestrian/downtown extension zone, whereas the Light Industry classification under §100-8 turns solely on the actual impact of the use.

In other words, all of the neighborhoods in our town are equal, but some are more equal than others. The Building, Planning and Zoning Official does not explain what ineffable quality "a pedestrian friendly zone with mixed uses" possesses that justifies a "categorical, mitigation-blind prohibition," except possibly the foibles of the commercial real-estate market.

40. This rationale considers only the impact of a proposed development, such as a cement plant, within the boundaries of its zoning district, whether it be LI (Light Industrial) or WG (Walkway/Gateway), and ignores the reality that in a small, close-grained community such as Lloyd, spill-over impacts of such a facility are equally likely to spread over zoning district boundaries as over property lines. The assumption that only nuisances confined within the borders of a zoning district should be counted is inconsistent with the fundamental purpose of the town's zoning code, which is "to promote and protect the public health, safety, convenience, aesthetics, natural, agricultural, and cultural resources, amenities and general welfare of the people,"[15] not the property values of a defined area of commercial landowners.

41. The difference draws a distinction between *landowners* and *land users*. Those within the WG (Walkway/Gateway) district receive "a categorical, mitigation-blind prohibition on certain Light Industrial uses," because they *own* land within the zone, while those in or adjacent to the LI (Light Industrial) district, who may be only residents or visitors, are merely *conditionally* protected.

42. It is enlightening to note that a somewhat different assessment of the zoning code was given by Building, Planning and Zoning Official Barton in the months after the adoption of the 2013 amendments:

[15] Town of Lloyd Code of Ordinances §100-5.

> . . . a year into the zoning, it was realized that amendments were needed to be made to the zoning. It was found that the Zoning Board of Appeals was giving more variances and the zoning as manifest was not going to work . . . it was realized that the document is 'schizophrenic'. There were contradicting items in the same document. The problem was that in looking up something, all that would be looked at was one section, but then two pages later, it would say the opposite. This document is supposed to guide all of the administrative, at the Town Board level, the ZBA level and the Planning Board level.[16]

43. In summary, it must be logically concluded that there is no rational reason for "a categorical, mitigation-blind prohibition" of a land use description or business type that is considered "high-impact" and categorically objectionable in one zoning district, but is presumptively permitted in another.

THREE: THE WRITTEN DETERMINATION IS INCORRECT AND IRRATIONAL BECAUSE THE PROPOSED FACILITY WILL, BY ANY REASONABLE MEASURE, CLEARLY ISSUE OBJECTIONABLE LEVELS OF SMOKE, NOISE, DUST, ODOR, AND OTHER RECOGNIZED POLLUTANTS AND NUISANCES.

44. In his written zoning determination, the Building, Planning and Zoning Official fails to define "objectionable," to describe what an "objectionable" level of smoke, noise, dust, odor or other pollution is, or to provide quantitative or qualitative criteria for identifying the intensity in which various pollutants become "objectionable."

45. Webster's Dictionary defines "objectionable" merely as a thing "arousing distaste or opposition; something unpleasant or offensive," a definition too subjective and individualistic upon which to base a set of regulatory findings.

46. Implied is a far more rigorous term of art, "nuisance," with a recommended "best practices" definition supplied by the American Planning Association:

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[16] Town of Lloyd Town Board, *Regular Meeting Minutes of July 17, 2013*, n.p [6]. [TAB 11]

> Nuisance: Any thing, condition, or conduct that endangers health and safety, or unreasonably offends the senses, or obstructs, the free use and comfortable enjoyment of property, or essentially interferes with the comfortable enjoyment of life.[17]

47. The following analysis will therefore ask: can the land use proposed by "3260 Route 9W Highland NY LLC" (a.k.a. Clemente Materials) in its application of March 10, 2026 reasonably be anticipated to generate a nuisance or nuisances at or beyond the property line of the site?

48. Water: The proposed concrete batch plant is proposed to use 10,000 gallons per day, the equivalent of either a 40-unit apartment building or 31 single-family residences. In the project's Environmental Impact Study, the source of this water is identified as the expansion of an existing on-site well.[18] Given this rate of pumping, the source well will yield one acre-foot of water every 4.3 days. After 2,352 days (9.04 years), assuming operation of the well only during weekdays (260 days/year), a withdrawal of 540 acre-feet of water will impact the surrounding aquifer at a distance of 500 feet from the source well between one and ten feet, depending upon the characteristics of the aquifer. The potential for lesser drawdown impacts exist up to 5,000 feet from the withdrawing well, depending upon the characteristics of the aquifer.[19]

49. This has the potential to adversely affect surrounding residences and existing business establishments, especially during drought periods, that currently rely on the aquifer for potable water. The loss of clean, potable water to surrounding properties comprises a condition that endangers persons and obstructs the free use of their land and is therefore a nuisance.

50. Dust and odor: A 2021 study of a neighborhood in Washington, DC adjacent to two concrete batch plants found that PM-10 and PM-2.5 particulate average levels were elevated, but exceeded EPA action-level standards for PM-10 emissions for only two of

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[17] American Planning Association, *A Planners Dictionary* (Washington, APA: 2004), q.v. "nuisance".

[18] *Full Environmental Assessment Form: Concrete Batch Plant, 3260 Route 9W, Town of Lloyd, Ulster County, NY*, §D.2.c. [Tab 3]

[19] Fred Kunkel, *Time, Distance and and Drawdown Relationships in a Pumped Ground-Water Basin* (Washington: Department of the Interior: 1960), Geologcal Survey Circular 433. [Tab 4]

ten days.[20] However, the prevalence of asthma in these neighborhoods was widespread, with 42.3 percent of the residents of the neighborhood having been diagnosed with asthma and 64.9 percent of the residents exhibiting one or more major symptoms of asthma. A major contributing source of particulate emissions was not the operation of the batch plant themselves, but the operation of diesel engines on site from equipment such as forklift trucks and front loaders; and from cement delivery trucks.

51. The study concluded that: 1) regulatory limits based on 24-hour monitoring levels do a poor job of shielding neighborhoods from actual impacts of dust generation; and 2) current environmental standards for cement batch plants fail to take into account emissions from diesel engines, which accounted for a significant proportion of the particles captured by nearby monitoring stations. These pollutants would not, of course, be reduced by any mitigation measures applied to the batch plant itself but result from the use of cement delivery trucks and from bulldozers and front loaders, used to move material around on the site. The health risk and threat to quality of life comprises a condition that endangers persons and obstructs the free use land surrounding the subject site amounting to a nuisance.

52. Wastewater: Only a relatively small amount of water consumed by the proposed concrete batch plant will actually go into the cement, as only about 16 percent of ready-to-deliver cement is comprised of water.[21] The targeted peak production of the facility is 300 cubic yards per day,[22] requiring about 9,000 pounds of water or 1,125 gallons, slightly over 11 percent of the plant's estimated water use. The bulk of the plant's water will be dedicated to washing operations, approximately 25 gallons per cubic yard,[23] at least 7,500 gallons per day at targeted peak production. The applicant proposes to recycle the washwater by

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[20] Shizuka Hsieh, Elgloria Harrison, Janet A. Phoenix and Rhonda Hamilton, "Asthma and Particulate Matter Pollution: Insights from Health Survey and Air Quality Monitoring in the Buzzard Point, Washington, DC Neighborhood," *Environmental Justice* 14, 4 (2021): 254-266. [Tab 6]

[21] *Project Narrative: 3260 Route 9W Highlane [sic] NY, March 10, 2026* (Clifton Park, NY: Environmental Design Partnership, 2026). [Tab 2]

[22] Email from Luke Clemente to David Barton, April 23, 2026, RE: memo from Town of Lloyd Planning Board. [Tab 12]

[23] Aman Shamseldein, Mohamed Amr and Fatma Attia, "Impact of Treated Wash Water From Ready Mix Concrete Plants on Concrete Properties and Durability," *Nature Scientific Reports* 16:8493 (2026) doi.org/10.1038/s41598-026-39590-5/. [Tab 13]

using it in the production of delivered cement, reducing the need to dispose of contaminated water to 150 gallons per day, which will be disposed of in the sanitary wastewater system, a septic tank.[24]

53. However, the use of recycled wash water in concrete is highly restricted by ASTM C-94 *Specification for Ready Mix Concrete*. Generally, recycled solids are limited to about 15 pounds per cubic yard of ready-mix cement before the performance of the cement begins to deteriorate.[25] Depending on the treatment applied to the washwater, this means that 20 to 50 percent of the water used in a batch of new concrete can be recycled washwater. Assuming the most optimistic 50 percent ratio, this means only 150 pounds of water (19 gallons) can be used per cubic yard of cement. Thus, each cubic yard of cement produced will require 25 gallons of washwater, but is capable of absorbing only 19 gallons of recycled washwater. At its maximum intended capacity, this will result in a surplus of between 200,000 and 360,000 gallons of unused washwater per year. Because washwater is highly basic, with a pH of 11.5, it is a hazardous waste that cannot be externally recycled. If washwater is recycled for use as washwater, the pH becomes more basic (alkali) with each use cycle.[26] Thus, used washwater must either be utilized on site or disposed of as a toxic by-product. The threat to quality of life from the potential degradation of surface waters and the unregulated disposal of high-alkali contaminated water after repeated cycles of equipment washing and recycling comprises a condition that endangers persons on-site and off-site and obstructs the free use land in the vicinity of the project amounting to a nuisance.

54. Hazardous products: The project's environmental impact statement notes that the facility will continuously store 10,000 gallons of diesel fuel on site, without providing details as to the method of storage or contingencies for spillage or accidental combustion.[27]

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[24] *Full Environmental Assessment Form: Concrete Batch Plant, 3260 Route 9W, Town of Lloyd, Ulster County, NY*, §D.2.d. [Tab 3]

[25] Colin Lobo and Gary M. Mullins, "Recycled Waste in Ready Mixed Concrete Operations," Concrete in Focus (Spring 2003): 1-10. [Tab 14]

[26] Shamseldein et. al. "Impact of Treated Wash Water From Ready Mix Concrete Plants on Concrete Properties and Durability," 1. [Tab 13]

[27] *Full Environmental Assessment Form: Concrete Batch Plant, 3260 Route 9W, Town of Lloyd, Ulster County, NY*, §D.2.d. [Tab 3]

55. Noise: The only evidence submitted by applicant, and considered by the Building, Planning and Zoning Official in the preparation of his determination, was a noise impact study prepared in September, 2025 for another, similar, project proposed by the applicant in the Town of Clifton Park, New York.[28] This study contrasted ambient noise found at the Clifton Park site with the noise generated by a concrete batch plant operated by the applicant in Hudson, New York. The study found that the operations at the Hudson facility generated 89.3 decibels, which was considered not significantly higher than at three ambient noise receptor stations (67.8 decibels). However, all three ambient noise receptor sites were situated within 75 feet of Highway 9W.[29]

56. The east boundary of the proposed Town of Lloyd plant site abuts an environmental conservation site owned and operated by Scenic Hudson, intended to preserve the scenic qualities and natural amenities of the Hudson River.[30] This land is zoned residential. No attempt was made by the applicant to quantify the current conditions on this land, or to estimate the noise impact on this undeveloped site. The generalized data provided in the Clifton Park study suggests that a reasonable estimate of ambient sound in an environmental preserve 500 feet from the primary generator of ambient noise (i.e. from Highway 9W) is around 45 decibels.[31] Because decibel values are logarithmic, this suggests that a sound impact of 67.8 decibels will create a noise impact on the Scenic Hudson preservation lands somewhere between 10 and 100 times higher than the current ambient sound levels. The threat to the environmental quality of life from noise impacts, and the loss of unspoiled wild and scenic lands to the citizens of the Town of Lloyd and surrounding comprise a condition that endangers the environment, humans, and obstructs the free use land amounting to a nuisance.

57. Traffic: The traffic impact study prepared on behalf of the applicant acknowledges that the federal highway fronting the site cannot accommodate left-turn entries and exits into and out of the facility. The applicant therefore proposes to use two currently existing

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[28] Brian Miller and Strategic Mining Solutions, *1910 Route 9 Clifton Park LLC Concrete Batch Plant: Noise Impact Assessment, September 25, 2025* (no location: Strategic Mining Solutions: 2025). [Tab 15]

[29] *Id.* "Site Plan Map for Noise Impact Assessment."

[30] See Tab 8 (Conceptual Site and Grading Plan, June 11, 2026)

[31] *Id.* Figure 1: "Common Sound Levels".

turnarounds, one 2,850 north of the site and the other 750 feet south of the site, to accommodate trucks and automobiles that would otherwise turn left into or out of the site.[32] Thus, trucks and automobiles that would otherwise turn left to enter or exit the site must make three conflicting (crossing-path) turning movements. For an entry, these would entail: 1) a left turn to enter the turnaround; 2) a right turn to exit the turnaround into the traffic stream; 3) a right turn out of the traffic stream into the site's driveway.

58. The analysis notes that a gap in traffic of 6.1 seconds is required to accommodate a left-turning truck and up to 8.9 seconds is required to accommodate a right-turning truck without balking overtaking traffic.

59. But the calculation fails to recognize that three traffic gaps on Highway 9W will be necessary to safely enter or egress each truck or automobile into each site. In effect, the traffic impact will be triple that of a facility with a simple right-and-left in-and-out entry with a left-turn entry pocket on the public roadway.

60. For example, the applicant's consultant measured traffic on Highway 9W at the proposed site on Friday, September 25 at the PM peak period at 649 vehicles. Using a simple aggregate probably, this is one vehicle every 5.5 seconds. Using a Poisson distribution, the probability of a 6.1 second gap (the minimum time for a left turn) occurring at any random point in time is 0.45 (45 percent) and the probability of an 8.9 second gap (the minimum time for a right turn and merge) is 0.37 (37 percent).[33] The aggregate probability of a truck requiring three turns in place of a straightforward left-turn in or out of a driveway is thus: .45*.37*.37=.062. There is a 6.2 percent chance that each truck using either the north or south turnaround will *not* interfere with, or be balked by, other traffic on the highway. *This will occur 88 times per day.*

61. Critically, two thirds of these crossing and interfering movements will occur off-site, 2,850 feet north and 750 feet south of the applicant's land. The definition of "Light Industry" in the Town of Lloyd Zoning Code excludes uses that do not emit objectionable levels of nuisances "beyond the property boundaries." Here, the majority of the adverse

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[32] Creighton Manning Engineering, *Traffic Assessment, Highland Batch Plant, US Route 9W, Town of Lloyd, Ulster County, New York, CM Project No. R251377.0* (Albany: the firm, October 21, 2025). [Tab 16]

[33] Nicholas J. Garber and Lester Hoel, *Traffic and Highway Engineering* (St. Paul: West Publishing, 1988): Ch. 4.

traffic hazards and impacts are generated at locations distant for the proposed project; not even situated on the site's boundary with Highway 9W. This is not only a nuisance, it is a *public* nuisance.

62. Other issues. In August, 2025 the same applicant, Clemente Materials, submitted a site plan approval application for substantially identical concrete batch plant on a 19.4 acre site adjacent to Highway 9W in the Town of Clifton Park, Saratoga County. On May 8, 2026, Christine Matthews of the Residents for Responsible Development of Clifton Park prepared an analysis for the Clifton Park Planning Department contrasting the zoning laws and planning processes under which the two plants in the Town of Lloyd and Town of Clifton Park were being evaluated.[34]

63. That evaluation noted that "Clifton Park's twelve-plus months of review have surfaced concerns and produced disclosures that Lloyd has not yet developed. The report outlined several areas where Lloyd has collected no data, made no inquiries into possible adverse outcomes, and the applicant has volunteered no information, although these have been issues in controversy during the Clifton Park approval process: 1) Fuel storage and spillage containment; 2) Stormwater regulatory framework, including the need for a Multi-Sector General Permit for Standard Industrial Classification 3273, and formal acknowledgement that the project is a new development, not a redevelopment, because of the expansion of impervious area and change of use; 3) Air quality permitting, including verification and support to back up the applicant's contention that the project is not subject to air emissions permitting under 6 NYCRR Parts 200, 201, 211, and 212; 4) Wetland and habitat identification, not only on-site but proximate to adjacent sensitive environmental lands within 200 feet of the processing units; 4) Stormwater proximity to Class A waters.

64. One week before the Residents for Responsible Development report was prepared, the New York State Department of Transportation's regional office wrote the Town of Clifton Park Planning Office. The DOT regional office concluded that:

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[34] Christie Matthews, *Brief for the Official Record: Town of Lloyd Concrete Batch Plant Materials and Their Applicability to the Town of Clifton Park 1910 US Route 9 Application* (Clifton Park: Residents for Responsible Development, May 8, 2026) with cover memo. [Tab 17]

> . . . although this project helps support one of the economic strategies of the [town's] comprehensive plan, there are still zoning, environmental and public concerns that make this project currently misaligned with the town vision established in the comprehensive plan. Clifton Park zoning code indicates that "Assembling/fabrication, processing or light manufacturing of products" are acceptable if they do not result in any noxious noise or odor outside the district and does not have a deleterious affect on air or water quality." The EAF indicates that noise exceeding ambient levels may be produced, that the plant would be a site for air emissions, and the site contains wetlands that are considered quality impaired by NYS. There are environmental concerns with the proposed project as well.[35]

65. As was the case for the other nuisances and potential adverse impacts identified by the Town of Clifton Park and ignored or overlooked by the Town of Lloyd Building, Planning and Zoning Office, the counsel of the New York State Department of Transportation has not been sought out by the Town of Lloyd Building, Planning and Zoning Office.

FOR THESE GOOD GROUNDS the Appellant requests that the Town of Lloyd Zoning Board of Appeals reverse the zoning determination of July 8, 2026 of Building, Planning and Zoning Official David Barton. The Zoning Board of Appeals should hold that a cement batch plant is not a "Light Industry" as defined in section 100-8(108) and is therefore not a permitted use in the LI (Light Industrial) zoning districts of the Town of Lloyd.

Bruce Epperson July 28, 2026

Bruce Epperson
314 Bellevue Rd.
P.O. Box 1020
Highland, NY 12528

[35] Letter from Greg Wichser, P.E., New York State DOT to John Scavo, Jr. Town of Clifton Park Planning Department, May 1, 2026, Re: Route 9 Batch Concrete Plant. [Tab 18]

Tab 1

Tab 1

Determination: Concrete Batch Plant as Light Industry Use

Date: July 8, 2026

Background

An applicant, Clemente Materials, Inc., applied to the Planning Board for a Concrete Batch Plant (CBP) located at 3260 Route 9W, Highland, NY 12528 (S.B.L. 80.3-2-8) in the Town of Lloyd. A CBP is a facility used to store materials for, mix, and deliver wet concrete to a job site. As such, the CBP has storage for various items, such as aggregate, sand, water, and cement. Discussion concerning the type of use the plant would fall under in the Zoning Code was held. The closest classification in the Use Table is Light Industry, defined in §100-8 of the Zoning Code as follows:

> *LIGHT INDUSTRY*
>
> *Manufacture, assembly, treatment, processing, or packaging of products that does not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries.*

Proposals such as that here under consideration must be reviewed against this definition using the reasonable person standard to assess what would constitute objectionable levels, as well as whether the proposed use is permitted within the zoning of the parcel under consideration.

Light Industry Manufacturing/Processing

Concrete is made by processing various raw or previously processed materials by mixing them and adding water. Concrete is a product of that processing and is customarily "batched" by truckload for delivery to a job site. Accordingly, any proposed operation must satisfy the first element of the Light Industry definition — the manufacture, assembly, treatment, processing, or packaging of a product as well as whether the operation, as proposed, would emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries. Each of these factors is addressed in turn below.

Dust

Of all the items listed, cement has the most potential for the creation of adverse dust production.

The proposed use must be designed to contain, to the greatest extent possible, any dust associated with the storage, mixing, or transport of the various materials used in the creation of wet concrete. This may be achieved by creating areas of dust collection that use depressurization and dust collection bags to capture any possible dust at two points where dust could otherwise escape containment: (1) where the cement product is moved into the batching portion of the plant, and (2) where the concrete is ported into the concrete truck for transport to the job site. At this second point, the chute that delivers the concrete into the truck should be sealed against the intake of the truck, preventing dust from escaping.

Such measures would ensure against levels of objectionable dust beyond the property line.

Noise

Noise is another concern that has traditionally been associated with CBPs. At some facilities, aggregate is processed on site using rock crushing machines, which are very loud and create both noise and vibration. This will not be the case at this site.

Some noise would be expected from the use of conveyor systems, hoppers, and mixing units. A large portion of the mechanical equipment used in any proposed facility must be located inside structures, and enclosing the cement hopper, under which concrete trucks are loaded would further suppress noise emissions.

Based on these measures, no levels of objectionable noise are expected beyond the property line.

Smoke

No smoke is expected to be generated on site. No levels of objectionable smoke are expected beyond the property line.

Glare

No glare is expected to be generated on site. No levels of objectionable glare are expected beyond the property line.

Odor

No odor is expected to be generated on site. No levels of objectionable odor are expected beyond the property line.

Vibration

Vibration is possible due to various equipment on the property. Loaders are often used to move some materials into a transfer system. Vibration is also possible from the mechanical equipment associated with batching materials to create concrete loads. As noted above, this could be eliminated through the use of enclosed structures to suppress any noise or vibration emanating from the property.

Based on these measures, no levels of objectionable vibration are expected beyond the property line.

Additional Items Considered

The Zoning Code of the Town of Lloyd (Chapter 100 of the Town of Lloyd Ordinance) contains two definitions in §100-8 – Definitions which could be interpreted as applying to Light Industry uses. The primary definition is noted above but is repeated here for clarity:

LIGHT INDUSTRY

Manufacture, assembly, treatment, processing, or packaging of products that does not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries.

This has been the traditional definition. Similar language existed in the Zoning Code adopted in 1974 and continued until the adoption of the Zoning Code in 2013. The 1974 Code listed concerns about smoke, dust, odor, and vibration, indicating that the Town has long anticipated potential environmental impacts in connection with Light Industry uses and has long considered impacts of this kind — if not always this exact list of factors — relevant to that classification. The Town's qualitative, impact-based approach to defining Light Industry has remained consistent since 1974, even as the specific list of factors has been refined.

A second definition reads:

4-2013 - walkway gatewa
4-2014 - Blue Point
4-2015 Highway Gateway

INDUSTRIAL LIGHT

Includes limited manufacturing, wholesaling, warehousing, research and development, and related commercial/service activities such as: beverage bottling, distribution and warehousing; contractors offices and storage buildings; including general contractors, plumbers, electricians, heating, ventilating, air-conditioning contractors, masons, painters, refrigeration contractors, roofing contractors, and other such construction occupations; distribution centers; ice production, storage, sales and distribution; laboratories for research, testing and experimental purposes; manufacture of computers, computer peripherals, electrical appliances, electronic equipment, medical instruments, and other similar products from previously manufactured components; manufacture of precision instruments and equipment, such as watches, electronics equipment, photographic equipment, optical goods and similar products; manufacturing of articles or merchandise from previously prepared or natural materials, such as cardboard, cement, cloth, cork, fiber, glass, leather, paper, plastics, wood, metals, stones and other such prepared materials; printing and publishing. [Added 10-15-2014 by L.L. No. 4-2014]

This definition was added in 2014 in connection with an addendum to the Blue Point Overlay District. It is helpful to the understanding of Light Industry that this definition includes "...manufacturing of articles or merchandise from previously prepared...materials, such as...cement..." are among the materials contemplated for "Industrial Light" uses.

Another location in the Zoning Code that describes Light Industrial uses is §100-38 – Supplementary standards for the W-G District. Under §100-38.C, Light Industrial uses are allowed in the Walkway Gateway Zone if they follow specific standards. Section 100-38.C(3) states specifically that:

Light industrial uses deemed to be high-impact uses are expressly prohibited. High-impact uses include industrial or manufacturing processes engaged in the production of any products classified under the following North American Industry Classification (NAIC) 2007 system code numbers: Veneer, Plywood and Engineered Wood Product Manufacturing (3212), except for Truss Manufacturing (321214), which shall

not be included as a high-impact use; Pulp, Paper and Paperboard Manufacturing (3221); Petroleum and Coal Manufacturing (3241); Basic Chemical Manufacturing (3251); Pesticide, Fertilizer and Other Agricultural Chemical Manufacturing (3253); Other Chemical Products and Preparation Manufacturing (3259); Clay Product and Refractory Manufacturing (3271); Glass and Glass Product Manufacturing (3272); Cement and Concrete Manufacturing (3273); Lime and Gypsum Manufacturing (3274); Other Nonmetallic Mineral Product Manufacturing (3279); Iron Steel Mills and Ferroalloy Manufacturing (3311); Steel Product Manufacturing from Purchased Steel (3312); Alumina and Aluminum Production and Processing (3313); Nonferrous Metal (Not Alum) Production and Processing (3314); Foundries (3315); Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing (3252); Rubber Products Manufacturing (3262); and Leather and Allied Product Manufacturing (3161).

This section of the Code, although it does not apply to zones besides the Walkway Gateway Zone, states specifically that "Cement and Concrete Manufacturing" is a category of light industrial use, albeit one treated as having high-impact potential.

It is helpful that the list of uses classified as light industrial in this section includes cement and concrete manufacturing, even though that use is excluded from the Walkway Gateway Zone specifically. That exclusion makes sense given that the Walkway Gateway District is designed to be a pedestrian-friendly zone with mixed uses that act as an extension of the traditional downtown area known as the Hamlet of Highland. The Walkway Gateway District imposes a categorical, mitigation-blind prohibition on certain Light Industrial uses because it is a special pedestrian/downtown extension zone, whereas the Light Industry classification under §100-8 turns solely on the actual impact of the use at the property line — impacts for which the applicant, Clemente Materials, Inc., has proposed specific mitigation measures, and which the Planning Board would further consider during its site-plan review. A concrete batch plant is accordingly a Light Industry use appropriately located within the Town's Light Industry zone.

Determination

Pursuant to §42-4.B of the Town of Lloyd Ordinance, the Code Enforcement Officer, David Barton, interprets the Use Table as follows.

Using the reasonable person standard, the Building Department finds that the proposed concrete batch plant satisfies the definition of Light Industry. Wet concrete is a product, and batching the constituent materials to create it is a form of manufacture and processing. Based on the mitigation measures described by the applicant — including dust collection and depressurization at the cement transfer point, a sealed delivery chute at the truck-loading point, and the substantial enclosure of mechanical equipment within structures — the Department further finds that a concrete batching plant designed to protect against objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries would not violate the definition.

Section 100-38.C(3) of the Code identifies Cement and Concrete Manufacturing (NAICS 3273) as a light industrial use that is treated as high-impact, and on that basis prohibited, within the Walkway Gateway District specifically. That prohibition is a categorical, district-specific policy choice for a pedestrian-oriented zone and does not apply to or limit the Light Industry zone, where the governing test is the actual, measured impact of the use at the property line rather than its NAICS classification. The Department accordingly concludes that a concrete batch plant is an appropriate Light Industry use within the Town's Light Industry zone.

This determination is conditioned on the batch plant being constructed and operated substantially as represented to the Department, including the dust collection and depressurization systems, the sealed truck-loading chute, and the enclosure of mechanical equipment described above. Any material deviation from these representations that results in objectionable levels of smoke, noise, dust, odor, glare, or vibration beyond the property boundaries shall void this determination and require re-review by the Department.

Tab 2

Tab 2

Project Narrative

3260 Route 9w Highlane NY LLC

Concrete Batch Plant

NYS ROUTE 9w

Town of LLyod

Ulster County, New York

March 10, 2026

Prepared By:

The Environmental Design Partnership, LLP

900 Route 146

Clifton Park, NY 12065

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.

Shaping the physical environment

The attached plan represents the concept development plan for a Proposed concrete Batch Plant to be located at 3260 Route 9W. The site is identified as tax parcel 80.3-2-8 and zoned LI Light industrial. The plan illustrates the general intent of the site development and the configuration for the major elements of the proposed design program. The Site Plan Application was compiled in accordance with the Town of Llyod Zoning Ordinance. The plan is to develop a 4600± sf Batch plant with conveyer system and aggregate piles the existing on-site building will be repurposed as office and support space for the plant.

The project will disturb greater than one acre and will be subject to the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-002). A Full Stormwater Pollution Prevention Plan SWPPP) that includes erosion and sediment control measure will be provided.

Beyond the local Land use boards, the project will requires permitting from USACE for wetland disturbance and from NYSDOT for curb cut modification.

Below is a general overview of the Batch Plant Operations.

Concrete is sold by the cubic yard which is a volumetric measurement equal to 27 cubic feet. There are 5 ingredients that, when combined through a mixing process in the mixer drum, will produce ready mix concrete. There is sand (also called fine aggregate), stone (also called coarse aggregate), cement (the powdered binder), admixtures (concrete enhancement water-based solutions) and water (reacts with the cement to make the hardened finished product). Each load of concrete has a specific recipe or mix design to create specific physical characteristics such as compressive strength of the placed concrete.
There are four primary components to a concrete batch plant: Ground aggregate hoppers, conveyor systems, inside aggregate storage and batching building and cement silos.
The ground hoppers are loaded with dump trucks with sand and stone. These hoppers are fully enclosed on four sides and bottom, but open on top to allow for dump truck to dump the sand and stone into the grated hopper. There are small gates on the bottom of the hoppers that are powered by compressed air and electricity. As needed, the batch computer controls an electrical signal that is sent to the requested gate which operates a pneumatic ram that opens and allows the material needed to flow onto the conveyor. The conveyor belt is covered and transports the sand and stone to the aggregate hoppers inside the aggregate building. These hoppers are a set of storage bins separated by steel walls. These internal storage bins are positioned over an aggregate scale. Based on the required mix design, the materials are weighed through a system of pneumatic rams controlled by the batch computer using electrical signals and sensors to make every batch of concrete an exacting recipe. During the

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manufacturing process, when the batch computer determines it is time to add the aggregate to the concrete mixer, a long gate at the bottom is the scale opens. In a controlled and continuous manner, the material falls out of the scale onto a running conveyor belt below the scale and elevates the material into a loading hopper that allows the aggregate to fall into the concrete mixer below.

Next to the aggregate building there is a rectangular cement silo containing three individual and separate compartments. The cement silos are designed at a height that facilitates the gravity feeding of the cement into the mixer. Cement Is transported to the site using fully enclosed cement haulers. Cement is discharged into the cement silos pneumatically (using low pressure compressed air). The cement hauler is pressurized to pneumatically deliver the cement product to the top of the cement silo using an enclosed and sealed pipe from the cement hauler. In order to prevent over pressurizing of the cement silos during loading, excess air pressure is relieved through a bag house (aka fabric filters) at the top of the cement silo. Such discharges are scrubbed of particulates prevent discharge of fugitive cement emissions to the environment. These filters are routinely inspected in order to maintain efficient and effective filtration. The cement is discharged from the silo using a fully enclosed rubber boot at the bottom of the cement silo into a scale. The batch computer controls a butterfly valve to facilitate and control the flow of cement out of the silo and into the cement scale. Once the batch computer determines the cement is ready to go into the concrete mixer it will use another butterfly valve to control the continuous and gradual flow of material out of the scale and into the concrete truck below. The plant will be equipped with a shroud that is inserted around the discharge hopper at the mixer drum opening. This shroud will utilize a vacuum system with separate filtration to catch fugitive cement emissions during the mixer loading process. The captured cement emissions are recycled, through a blower system, back into the cement silo to be used on the next load. As the cement is placed in the mixer drum it immediately comes into contact with the
wet aggregate already in the mixer drum which quells the potential for dust coming from the mixer drum.

There are small portions of water-based admixtures added to the mix (typically measured in ounces) to enhance the desired concrete product as needed for project requirements or weather conditions. The admixtures are stored in tanks inside the aggregate building. The batch computer controls the pumping and metering of the liquid admixture. The admixture is introduced into the waterline at the discharge hopper where it immediately flows into the concrete mixer as the aggregate is being loaded into the concrete mixer.

Well water is also added to the mixer during the loading of the sand, stone, and cement. The water used in the concrete is stored inside a large water tank inside the aggregate building. In the winter, the water is heated using a steam diffuser from a boiler run on nature gas/propane. The water tank is piped into a pump that delivers the necessary water into the concrete mixer

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as it is being loaded. If there is water contained in the washout basins, such water will be used in the concrete mix. If the recycle washout basins are empty, well water is used.
The ground floor of the aggregate building will contain a closed-loop three side-by-side wash out basins that are used to rinse the mixer drums at the end of each day for final washout. The washout water is discharged into the first basin to allow the heavier aggregates to settle out. The washout water from the first basin travels to the second basin where the finer material settles out. The washout water continues to the third basin where it is relatively clear of sand and aggregate. The washout water is recovered and is reused in plant operations. The residual sand, stone and cement are recycled and used in future concrete production.
The sand and stone will generally come from aggregate mines generally located within Ulster, Orange and Dutchess counties. The cement will typically be procured from regional cement providers. The cement for this plant will generally be transported from over 2 hours away. The water is sourced from an on-site well and the admixtures are transported from New Jersey. The sand and stone make up about 70 percent of the final combined volume, water making up about 16% and cement making up about 14 percent.
Once all the stone, cement, water, and admixtures are loaded into the truck, the truck will then move to wash out basin where the ingredients are mixed together (at about 17 revolutions a min for 7-10 mins to create the final combined concrete product) and any material on the truck is washed into the washout basin. Once the concrete is of a consistent uniform mix, the truck is ready to leave and deliver the concrete to the local homeowner or business.
Attached for your consideration are some pictures of an existing concrete plant owned by us

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Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Light Industrial Batch Concrete Plant

Project Location (describe, and attach a location map):
3260 Route 9W, Town of Lloyd, Ulster County, NY

Brief Description of Proposed Action:
Proposed development includes the clearing and grading of the limits of disturbance, installation of stone gravel surface, removal of the existing driveway and creation of a new asphalt entrance, grading of stormwater management area, and installation of the proposed batch concrete plant and accessory buildings.

Name of Applicant or Sponsor:	Telephone: (845)765-1645
3260 Route 9W Highland NY, LLC	E-Mail: LukeC@bondedconcrete.com

Address:
PO Box 189, 248 Watervliet Shaker Rd.

City/PO:	State:	Zip Code:
Colonie	NY	12189

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☑	☐

3. a. Total acreage of the site of the proposed action? 4.82 acres
   b. Total acreage to be physically disturbed? 3.43 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 4.82 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☐ Rural (non-agriculture) ☑ Industrial ☐ Commercial ☑ Residential (suburban)
   ☑ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify): Business
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies:	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: ⊥ Well	☑	☐

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: Septic system	☐	☑

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☐	☑
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: Approximately 0.095 total acres of wetland disturbance		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☑ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☑ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☑	☐
If Yes, briefly describe:		
Strom water management areas are proposed outside of disturbed areas.		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

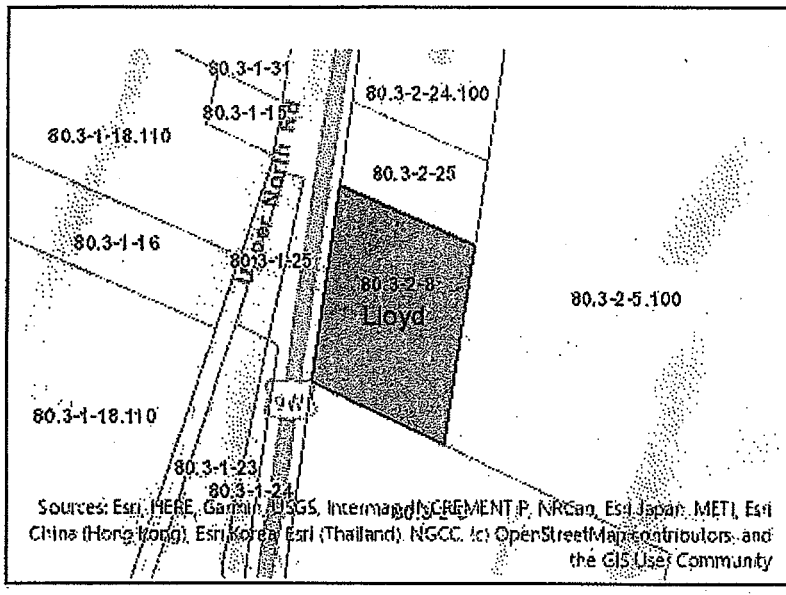
Applicant/sponsor/name: Joseph C. Dannible RLA (Agent) Date: 3-5-2026

Signature: Title: RLA

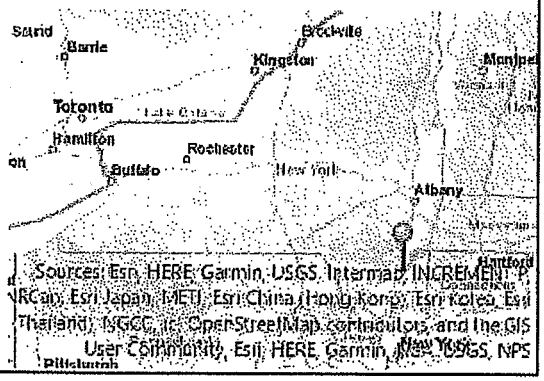
PRINT FORM

EAF Mapper Summary Report

Friday, February 27, 2026 12:48 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No

Tab 3

Tab 3

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Light Industrial Batch Concrete Plant		
Project Location (describe, and attach a general location map): 3260 Route 9W, Town of Lloyd, Ulster County, NY		
Brief Description of Proposed Action (include purpose or need): Proposed development includes the clearing and grading of the limits of disturbance, installation of stone gravel surface, removal of the existing driveway and creation of a new asphalt entrance, grading of stormwater management area, and installation of the proposed batch concrete plant and accessory buildings.		
Name of Applicant/Sponsor: 3260 Route 9W Highland NY, LLC	Telephone: (845)765-1645 E-Mail: LukeC@bondedconcrete.com	
Address: PO Box 189, 248 Watervliet Shaker Rd.		
City/PO: Colonie	State: NY	Zip Code: 12189
Project Contact (if not same as sponsor; give name and title/role): Environmental Design Partnership (Joseph Dannible)	Telephone: 518-925-0584 E-Mail: jdannible@edpllp.com	
Address: 900 Route 146		
City/PO: Clifton Park	State: NY	Zip Code: 12065
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
Government Entity	**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes☑No		
b. City, Town or Village Planning Board or Commission ☑Yes☐No	Town Planning Board (site plan)	
c. City, Town or Village Zoning Board of Appeals ☐Yes☑No		
d. Other local agencies ☐Yes☑No		
e. County agencies ☐Yes☐No		
f. Regional agencies ☐Yes☑No		
g. State agencies ☑Yes☐No	NYSDEC (stormwater) NYSDOT (curb-cut Modification)	
h. Federal agencies ☐Yes☑No	USACE Wetland disturbance permit	

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1 –

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes☑No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

_____

_____

_____

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
LI

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Highland School District

b. What police or other public protection forces serve the project site?
Town of Lloyd Police Department,

c. Which fire protection and emergency medical services serve the project site?
Highland Fire District

d. What parks serve the project site?
Berean Park, Highland Landing Park, Hudson Valley Rail Trail, John Burroughs Nature Sanctuary

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Light Industrial

b. a. Total acreage of the site of the proposed action? 4.82 acres
b. Total acreage to be physically disturbed? 3.43 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 4.82 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐Yes ☑No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No

If Yes,

i. Total number of structures 1

ii. Dimensions (in feet) of largest proposed structure: _____ height; _____ width; and _____ length

iii. Approximate extent of building space to be heated or cooled: 4,200 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑Yes ☐No

If Yes,

i. Purpose of the impoundment: Stormwater Management

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑Other specify: Stormwater Runoff

iii. If other than water, identify the type of impounded/contained liquids and their source. N/A

iv. Approximate size of the proposed impoundment. Volume: 0.3± million gallons; surface area: 0.3± acres

v. Dimensions of the proposed dam or impounding structure: 6 feet height; 40 feet length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): Excavation

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No

If Yes:

i. What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes ☐No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑Yes ☐No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): US Army Corps of Engineers Wetlands Wetland Disturbance Regulations

_____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
Filling approximately 0.074 acres of wetlands.

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☑ Yes ☐ No
If Yes, describe: Filling of wetlands

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☑ No
If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____
None

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 10,000 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☑ No
If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____
Private Well

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 150 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☑ No
If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

Septic system

vi. Describe any plans or designs to capture, recycle or reuse liquid waste:

The batch concrete plant plans on recycling wash water and use it in the mixing process.

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.95 acres (impervious surface)

_____ Square feet or 4.82 acres (parcel size)

ii. Describe types of new point sources. Batch Plant building and new pavement areas

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Proposed stormwater management basin

- If to surface waters, identify receiving water bodies or wetlands: _____
- Will stormwater runoff flow to adjacent properties? ☑Yes ☐No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Diesel front end loader, fork lift, concrete mixers

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

Batch Plant

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

Natural gas to heat water in winter

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☑Yes ☐No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☑No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐Morning ☐Evening ☐Weekend
☐Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____
15,000 kwh per month

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):
Local utility company

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7am to 6pm
- Saturday: 7am to 3pm
- Sunday: none
- Holidays: none

ii. During Operations:

- Monday - Friday: 5am to 6pm
- Saturday: 6am to 1pm
- Sunday: none
- Holidays: none

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Intermittent use of lifting crane and power tools between 7am and 6pm, noise levels will be above existing but will be below DEC and Town limits

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

15 ft high light fixtures on the building and 20 ft light poles within the truck yard

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☑ Yes ☐ No

If Yes:

i. Product(s) to be stored Diesel Fuel

ii. Volume(s) 10,000 gal per unit time 12 times per y (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

Above ground tank with secondary containment, diesel fuel will be NYS DEC PBS registered and compliant

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 1 tons per month (unit of time)
- Operation : 3 cu. yds tons per week (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: Recycling
- Operation: Recycling

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: Waste hauler to approved disposal facility
- Operation: Waste hauler to approved disposal facility

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.2	2.0	+1.8
• Forested	3.4	1.1	-2.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	0.65	0.58	-0.07
• Non-vegetated (bare rock, earth or fill)	0.1	0	-0.1
• Other Describe: Lawn and Landscaping	0.5	1.2	+0.7

c. Is the project site presently used by members of the community for public recreation? ☐Yes☑No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes☑No
If Yes,
i. Identify Facilities:

_____
_____

e. Does the project site contain an existing dam? ☐Yes☑No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes☑No
If Yes:
i. Has the facility been formally closed? ☐Yes☐No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes☑No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes☑No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes☐No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes☑No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____
_____

v. Is the project site subject to an institutional control limiting property uses? ☐Yes ☐No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐Yes ☐No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 5.75 feet

b. Are there bedrock outcroppings on the project site? ☑Yes ☐No
If Yes, what proportion of the site is comprised of bedrock outcroppings? 2 %

c. Predominant soil type(s) present on project site:

Bath-Nassau-Rock outcrop comple	32.3 %
Canandaigua Silt Loam	19.3 %
Mardin-Nassau Complex	48.4 %

d. What is the average depth to the water table on the project site? Average: 1.4 feet

e. Drainage status of project site soils:
☑ Well Drained: 32.3 % of site
☑ Moderately Well Drained: 48.4 % of site
☑ Poorly Drained 19.3 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 70.0 % of site
☑ 10-15%: 12.7 % of site
☑ 15% or greater: 17.3 % of site

g. Are there any unique geologic features on the project site? ☐Yes ☑No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑Yes ☐No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑Yes ☐No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑Yes ☐No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size 0.647
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐Yes ☑No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐Yes ☑No

j. Is the project site in the 100-year Floodplain? ☐Yes ☑No

k. Is the project site in the 500-year Floodplain? ☐Yes ☑No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐Yes ☑No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site:
deer, squirrel, rabbit
chipmonk, Song Birds

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): _____
ii. Source(s) of description or evaluation: _____
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐Yes ☑No
If Yes:
i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐Yes ☑No
If Yes:
i. Species and listing: _____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No
i. If Yes: acreage(s) on project site? _____
ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name: _____
ii. Basis for designation: _____
iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐Yes ☑No

If Yes:

i. Nature of historic/archaeological resource: ☐Archaeological Site ☐Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐Yes ☑No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐Yes ☐No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐Yes ☑No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐Yes ☑No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐Yes ☐No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

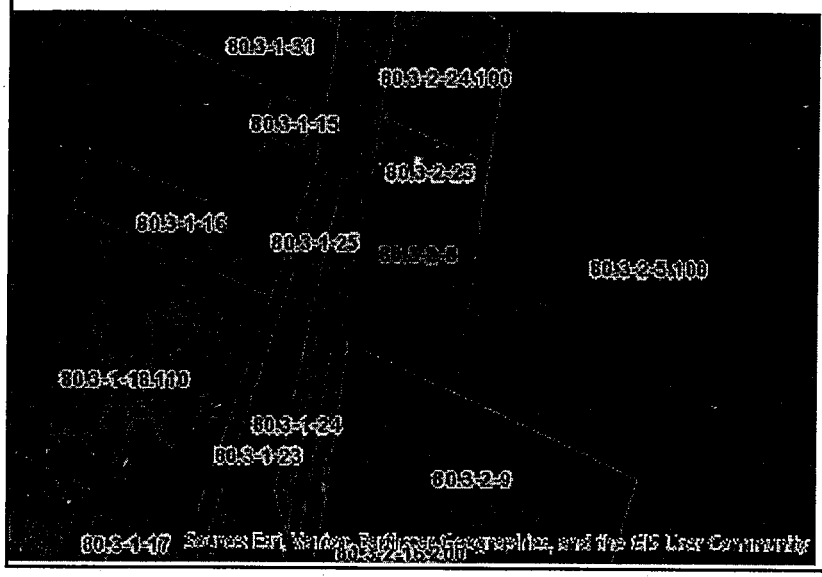
Applicant/Sponsor Name Joseph C. Dannible R.L.A. (Agent) Date 4-20-2026

Signature _____ Title R.L.A. (Agent)

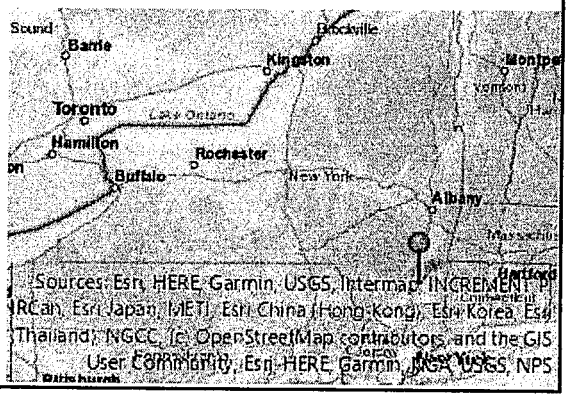
PRINT FORM

EAF Mapper Summary Report

Wednesday, April 8, 2026 4:05 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.

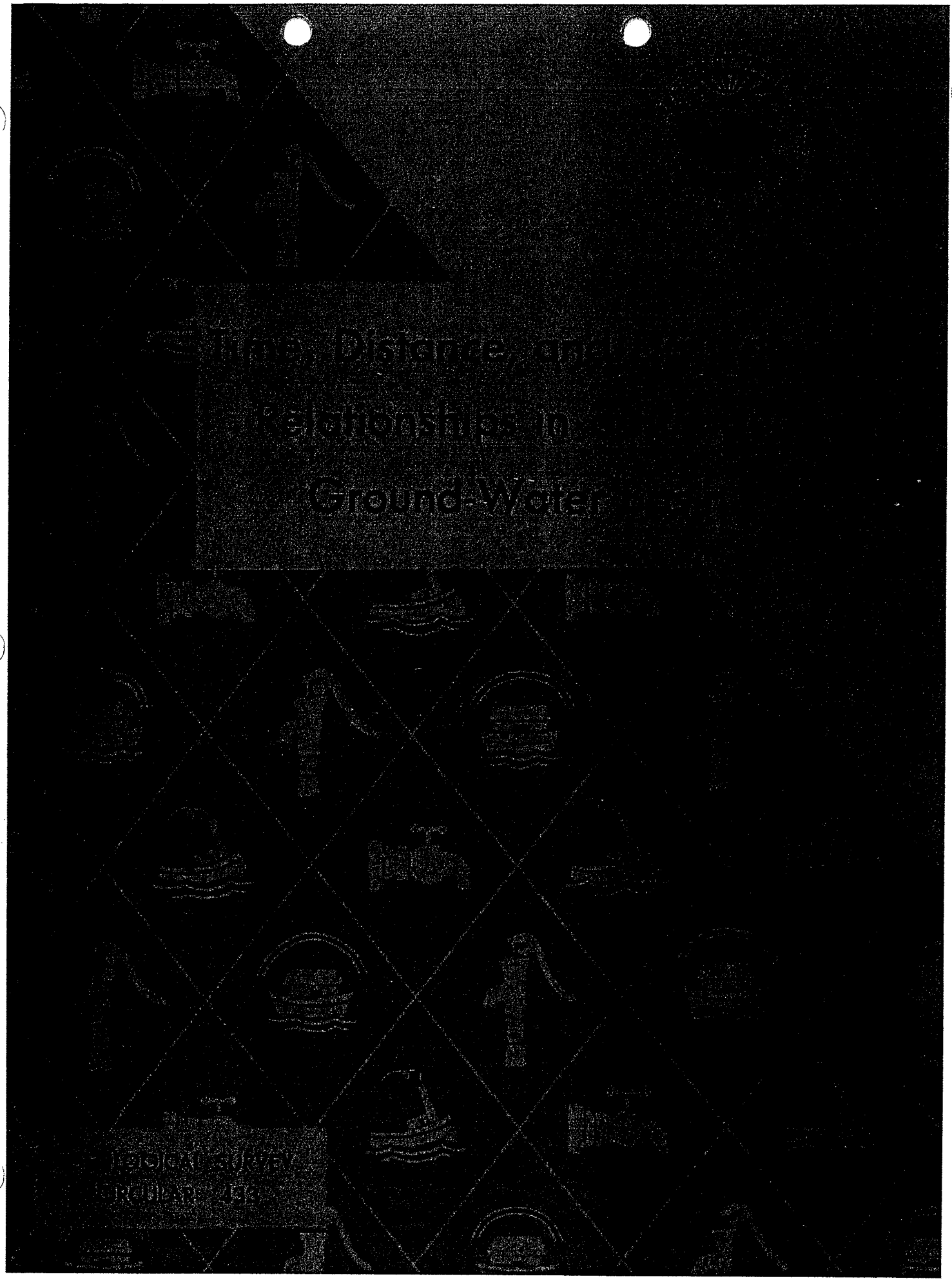


B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Tab 4

TAB 4


Time, Distance, and
Relationships in
Ground-Water
Geological Survey
Circular 455

Time, Distance and Drawdown Relationships in a Pumped Ground-Water Basin

By Fred Kunkel

GEOLOGICAL SURVEY CIRCULAR 433

Washington,
1960

United States Department of the Interior

FRED A. SEATON, SECRETARY

Geological Survey

THOMAS B. NOLAN, DIRECTOR

Free on application to the U. S. Geological Survey, Washington 25, D. C.

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Time, Distance, and Drawdown Relationships in a Pumped Ground-Water Basin

By Fred Kunkel

ABSTRACT

Several reasonable values are assumed for coefficients of transmissibility and storage of lenticular alluvial deposits. These values when substituted in the Theis (1935) nonequilibrium formula as modified by Wenzel (1942) give curves from which time, distance, drawdown relationships are estimated.

INTRODUCTION

In the development of a ground-water basin one of the principal problems commonly is to determine the effect of pumping on the water level in the basin. Where all the geologic and hydrologic factors are known, it is possible to determine these effects. In many ground-water basins most of the geologic and hydrologic conditions are reasonably well known except the coefficients of transmissibility and storage of the water-yielding deposits. For these basins it is possible to assume reasonable values for the coefficients of transmissibility and storage, and by use of standard formulas estimate probable water-level declines caused by pumping. In this paper a range of values is assumed for coefficients of transmissibility and storage that are considered by the author to be reasonable for the Quaternary alluvial deposits of many ground-water basins and are analyzed with reference to water-level declines for various distances and times.

Withdrawal of water from any permeable material causes the water level to decline in the vicinity of the withdrawal, and around a pumping well the shape of the water table or piezometric surface is somewhat like an inverted cone, its apex at the point of withdrawal. This cone is usually called a cone of depression. However, the overall size, shape, and rate of growth of this cone of depression are dependent upon (a) the rate and duration of pumping; (b) the coefficients of transmissibility and storage; (c) the increase in recharge, if any, induced by the declining water levels; (d) the reduction in natural discharge, if any, and (e) boundaries of the ground-water basin. The lowering at any point of the cone of depression is termed drawdown and is dependent upon the above variables and the distance from the pumping.

COMPUTATION OF DRAWDOWNS

In the following analysis it is assumed that the aquifer is constant in thickness, infinite in areal extent, homogeneous, and isotropic. For these conditions the relationship among the hydraulic properties may be expressed by the nonequilibrium formula developed by Theis (1935)

$$s = \frac{114.6Q}{T} \int_{\frac{1.87r^2S}{Tt}}^{\infty} \frac{e^{-u}du}{u}$$

in which s is drawdown, in feet, at any point, in the vicinity of a well pumped at a uniform rate; Q is the discharge of a well in gallons per minute; T is the coefficient of transmissibility of the aquifer in gallons per day per foot; r is the distance of the discharge well from the point of observation, in feet; S is the coefficient of storage, a decimal fraction; and t is the time the well has been pumped in days.

As the coefficient of transmissibility appears on both sides of the equation, the formula cannot be solved directly for T and S. However, T and S may be determined by a graphical method described by Wenzel (1942) from the following formulas.

$$T = \frac{114.6QW(u)}{s}$$

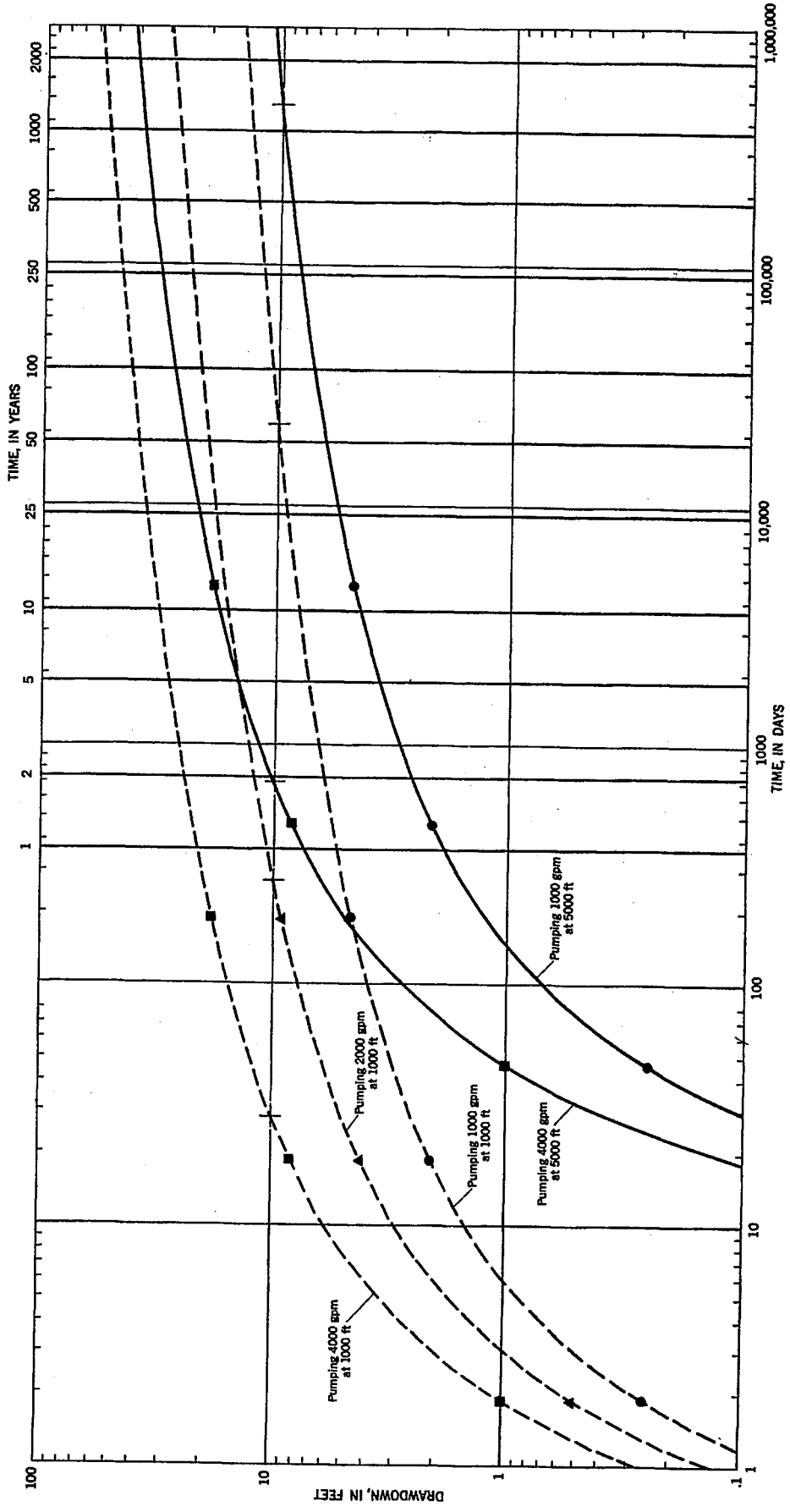

Figure 1.—Graphs showing relation between drawdown and time at observation points 1,000 and 5,000 feet from pumping well. Values for coefficients of transmissibility and storage are assumed to be 10^5,000 and 0.1 respectively. Points on curves are match points of nonequilibrium type curve for u values of 1.0, 0.1, and 0.01.

in which $W(u)$ is the "well function of u" and the other terms are as previously defined, and

$$S = \frac{tTu}{1.87r^2}$$

Conversely, if these formulas are modified as follows:

$$s = \frac{114.6QW(u)}{T} \text{ and}$$

$$t = \frac{1.87r^2S}{Tu}$$

it is possible to estimate or assume reasonable values for T and S and construct curves that show the time required for any given drawdown at any assumed distance from a pumping well. Accordingly, the accompanying figures graphically show these relationships.

Figure 1 shows two sets of curves for observation points in an aquifer having a coefficient of transmissibility of 100,000 and a coefficient of storage of 0.1. The first set of three curves are for points 1,000 feet from wells pumping 1,000, 2,000, and 4,000 gpm (gallons per minute). The second set of two curves are for points 5,000 feet from wells pumping 1,000 and 4,000 gpm. (See table 1.)

The curves for the observation point 1,000 feet from the pumped well show that it will require about 60 years of pumping at 1,000 gpm to lower the water level 10 feet at the observation point. However, if the pumping rate is increased to 2,000 gpm the 10 feet of drawdown will take about 270 days. If the pumping rate is increased to 4,000 gpm the 10 feet of drawdown will occur in about 28 days. Likewise, at an observation point 5,000 feet from the pumped well it will require about 1,300 years of pumping at 1,000 gpm to lower the water level 10 feet at the observation point. However, if the pumping rate is increased to 4,000 gpm the 10 feet of drawdown will occur in about 700 days or less than 2 years.

Figure 2 shows two sets of curves for observation points in an aquifer having a coefficient of transmissibility of 10,000 and a coefficient of storage of 0.1. The first set of curves are for points 500 feet from wells pumping 200 and 400 gpm. The second set of curves are for points 5,000 feet from wells pumping 400 and 800 gpm. (See table 2.)

Table 1.—*Time and quantity of pumpage required to lower the water level 10 feet at observation points 1,000 and 5,000 feet from a pumping well*

Pumping rate (gpm)	Observation point 1,000 feet from pumping well		Observation point 5,000 feet from pumping well	
	Time required	Pumpage required (acre-feet)	Time required	Pumpage required (acre-feet)
1,000	22,000 days (60 years)	97,000	470,000 days (1,300 years)	2,100,000
2,000	270 days (3/4 year)	2,400	----------	----------
4,000	28 days	500	700 days (1-9/10 years)	12,000

Table 2.—*Time and quantity of pumpage required to lower the water level 10 feet at observation points 500 and 5,000 feet from a pumping well*

Pumping rate (gpm)	Observation point 500 feet from pumping well		Observation point 5,000 feet from pumping well	
	Time required	Pumpage required (acre-feet)	Time required	Pumpage required (acre-feet)
200	610 days (1-2/3 years)	540	----------	----------
400	70 days	120	7,000 days (19-1/5 years)	12,000
800	----------	----------	1,950 days	6,900

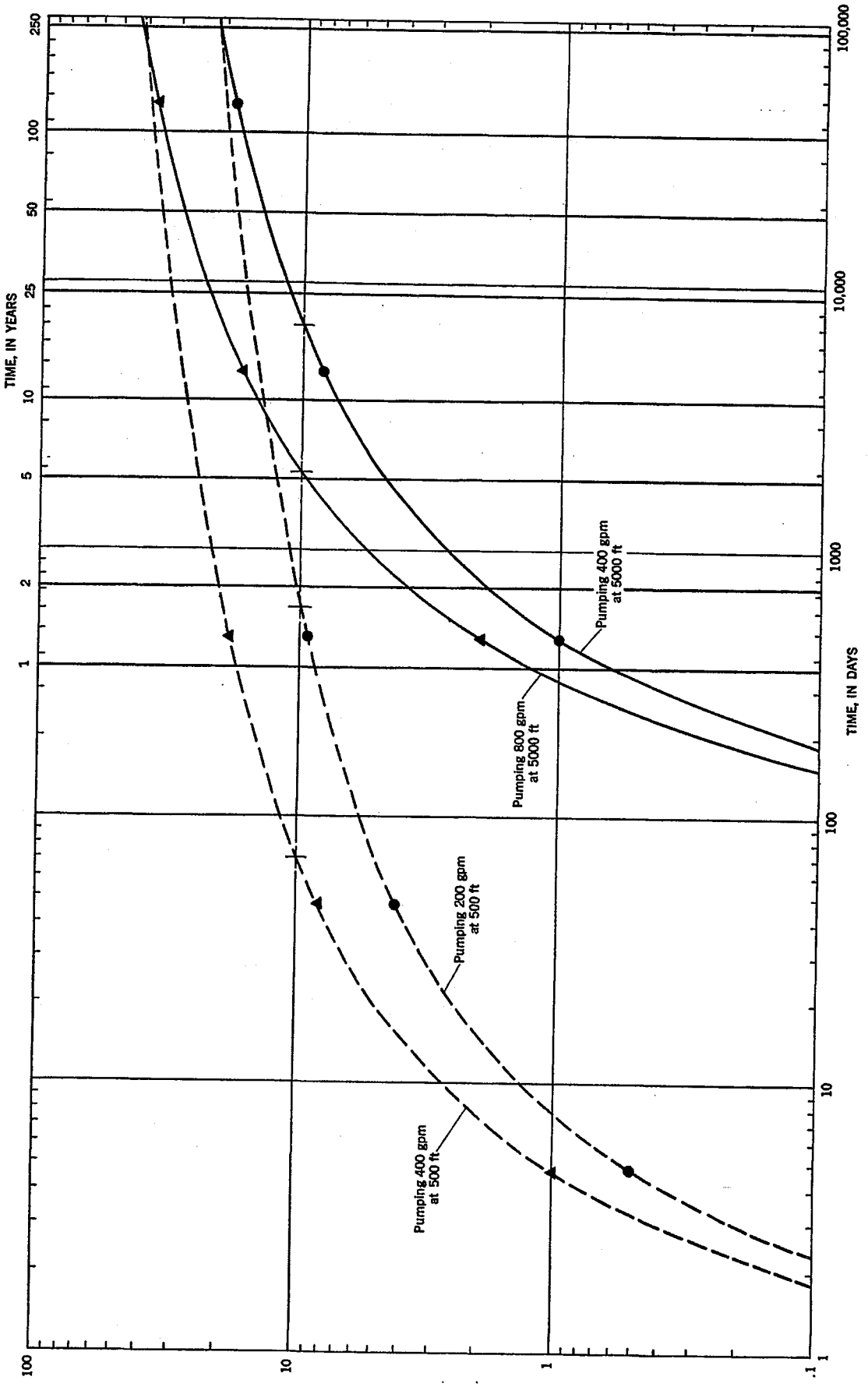

Figure 2.—Graphs showing relation between drawdown and time at observation points 500 and 5,000 feet from pumping well. Values for coefficients of transmissibility and storage are assumed to be 10,000 and 0.1 respectively. Points on curves are match points of nonequilibrium type curve for u values of 1.0, 0.1, and 0.01.

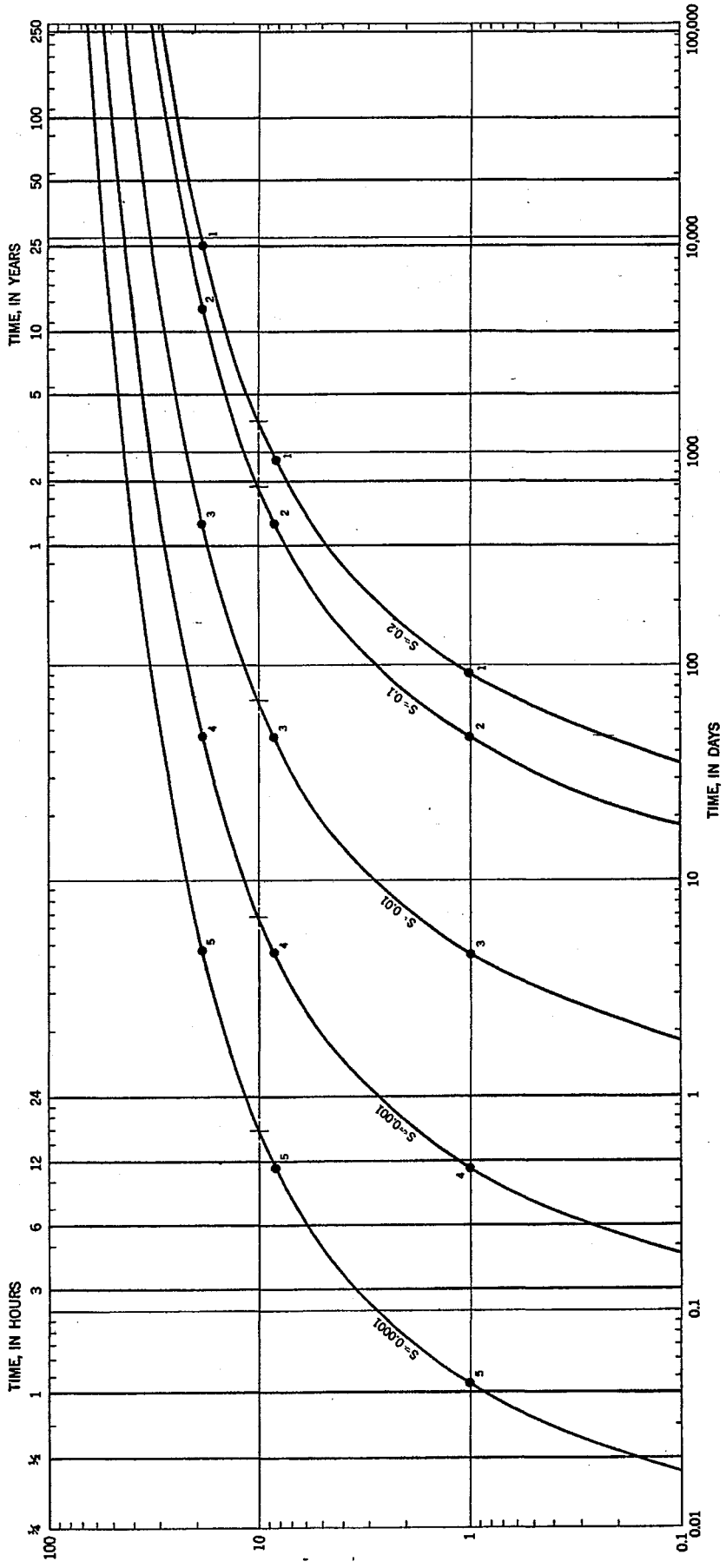

Figure 3.—Graphs showing relation between drawdown and time at observation point 5,000 feet from well pumping 4,000 gallons per minute. Values for coefficients of transmissibility and storage are assumed to be 100,000 and 0.2, 0.1, 0.01, 0.001, and 0.0001 respectively. Points on curves are match points of nonequilibrium type curve for u values of 1.0, 0.1 and 0.01.

The curves for the observation point 500 feet from the pumped well show that it will require about 610 days of pumping at 200 gpm to lower the water level 10 feet at the observation point. However, if the pumping rate is increased to 400 gpm the 10 feet of drawdown will occur in about 70 days. Likewise, at an observation point 5,000 feet from the pumped well it will require about 7,000 days of pumping at 400 gpm to lower the water level 10 feet at the observation point. However, if the pumping rate is increased to 800 gpm the 10 feet of drawdown will occur in about 1,950 days.

Figure 3 shows a set of five curves for observation points 5,000 feet from wells pumping 4,000 gpm in aquifers having a coefficient of transmissibility of 100,000 and coefficients of storage of 0.2, 0.1, 0.01, 0.001, and 0.0001. These curves show that for an S of 0.2 it will require about 1,400 days (3-3/4 years) of pumping at 4,000 gpm to cause a drawdown of 10 feet 5,000 feet from the pumping well. For an S of 0.1, 0.01, 0.001, and 0.0001 it will require 700, 70, 7, and 0.7 days, respectively, for a drawdown of 10 feet to occur at a distance of 5,000 feet. (See table 3.)

In addition to the time required for the 10 feet of drawdown to occur, figures 1-3 show also the total quantity of water, in acre-feet, that would be pumped for the various combinations of conditions. For example, figure 2 shows that if a well, under the conditions assumed, were pumped at 200 gpm for 610 days it would pump approximately 540 acre-feet of water and would cause water-level decline of 10 feet 500 feet from the well. If the pumping rate were doubled (increased to 400 gpm) the 10 feet of water-level decline 500 feet from the well would occur in 70 days and only 120 acre-feet of water would be pumped.

Table 3.—*Time and quantity of pumpage required to lower the water level 10 feet at an observation point 5,000 feet from a well pumping 4,000 gpm*

(Selected values are assumed from the coefficient of storage)

Coefficient of storage	Time required	Pumpage required (acre-feet)
0.2	1,400 days (3-3/4 years)	25,000
.1	700 days	12,000
.01	70 days	1,200
.001	7 days	120
.0001	0.7 day (16-4/5 hours)	12

Figure 4 shows a set of seven curves after the method of Theis (1938) for selected times in an aquifer having a coefficient of transmissibility of 100,000 and a coefficient of S of 0.1. Drawdown is plotted against distance from a well pumping 1,000 gpm at the end of 0.1, 1, 10, 100, 1,000, 10,000, and 40,000 days. These graphs show that, under the conditions assumed, a drawdown of $1\frac{1}{2}$ feet would occur in 2 hours and 24 minutes at a point 100 feet from the well pumping 1,000 gpm. However, it would require about 2-3/4 years of pumping for the same drawdown to occur at 9,000 feet. Similar relationships can be shown for other times.

It justifiably may be questioned if a theoretical analysis as presented herein is applicable to ground-water basins as they occur in nature. For example, figure 1 shows that if a well, under the conditions assumed, were pumped at 1,000 gpm for 1,300 years it would pump about 2,100,000 acre-feet of water and would cause a decline of water level of only 10 feet 5,000 feet from the pumped well. There probably is no ground-water basin in which this would occur even if the coefficients of transmissibility and storage were as assumed. Unless the aquifer or basin were truly of infinite areal extent, the cone of depression would have gone to the boundaries of the aquifer, and resulting image effects would have caused a drawdown much greater than 10 feet in less than 1,300 years. In virtually all aquifers of limited areal extent, boundary effects commonly result in drawdowns greater than those calculated for aquifers of infinite extent. Also, the preceding analysis does not allow for either an increase in recharge or a decrease in discharge which eventually must occur in any pumped aquifer.

However, figures 1 and 2 graphically demonstrate that an increase of pumping in an aquifer accelerates the rate of drawdown of the cone of depression at a rate proportionally much greater than the increased rate of pumping. Figure 3 graphically demonstrates that the rate of growth of the cone of depression is inversely proportional to the coefficient of storage. This is an important consideration because artesian aquifers commonly have coefficients of storage of about 0.001 or

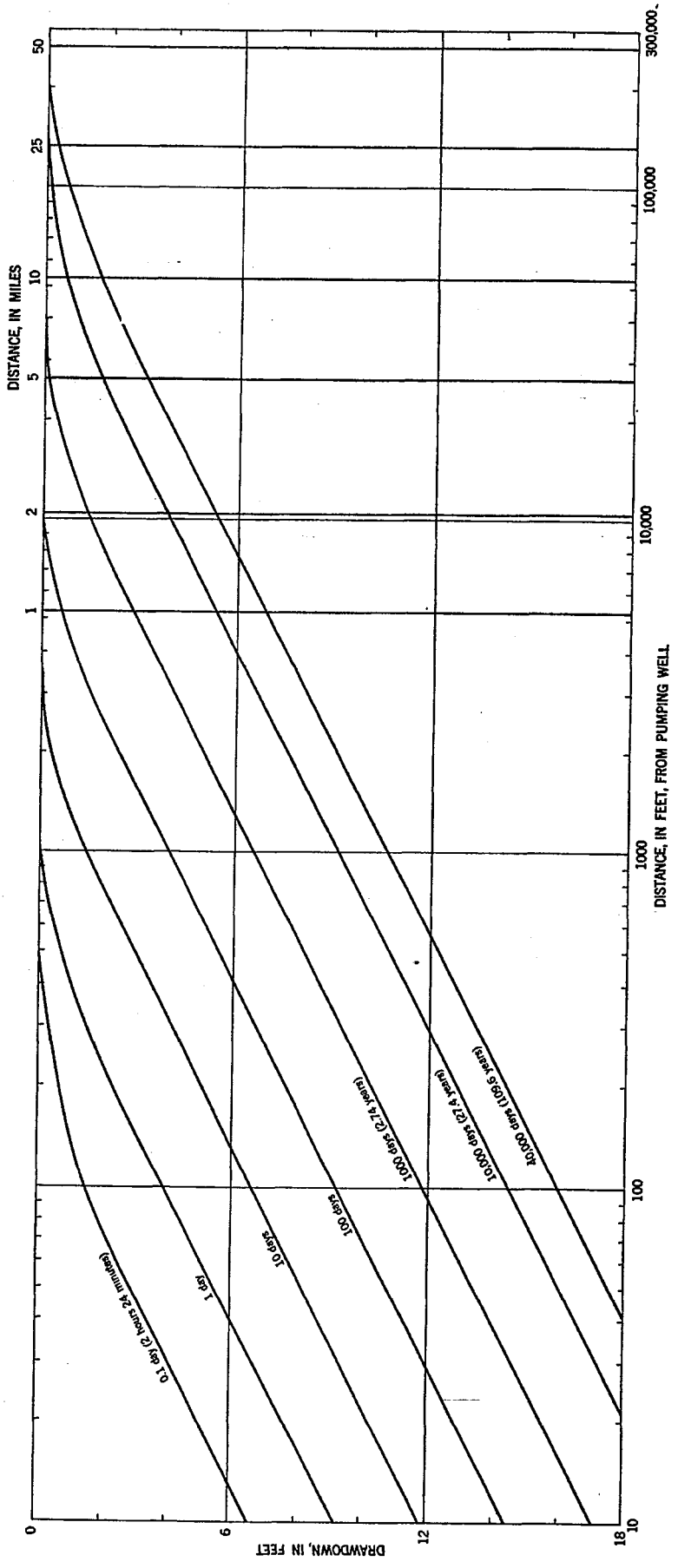

Figure 4.—Graphs showing relation between drawdown and distance from pumping well for selected times since pumping began. Values for coefficients of transmissibility and storage are assumed to be 100,000 and 0.1 respectively.

less, whereas nonartesian aquifers commonly have coefficients of storage of 0.1 or more. Hence, the cone of depression in an artesian aquifer grows 50 to 100 times as fast as it does in nonartesian aquifers.

Figure 4 demonstrates that within a few tens of years even for relatively low rates of pumping significant water-level declines occur at distances of several miles from the pumping. If these rates are increased as shown by figure 1 the water-level decline occurs at a greatly accelerated rate.

In summing up this discussion the following points, in large part after Theis (1938 and 1940), should be emphasized.

1. All water discharged by wells is balanced by a loss of water somewhere.

2. This loss is always to some extent, and in many cases largely, from ground water in storage in the aquifer.

3. However, after sufficient time has elapsed for the cone of depression to reach the area of recharge, further discharge by wells will be made up in part by an increase in the recharge if previously there has been rejected recharge.

4. Again, after sufficient time has elapsed for the cone of depression to reach the areas of natural discharge, further discharge by wells will be made up in part by a diminution in the natural discharge.

5. In artesian aquifers, compared to nonartesian aquifers, relatively little water is taken from storage. In artesian aquifers, because the cones of depression spread with great rapidity, each well in a short time has its maximum effect on the whole aquifer and obtains most of its water by an increase of recharge or decrease of natural discharge. In large nonartesian aquifers, where pumping is done at great distances from the localities of intake or outlet, however, the effects of each well are for a considerable time confined to a rather small radius and the water is taken from storage in the vicinity of the well.

6. In localities developing water from nonartesian aquifers and remote from areas of rejected recharge or natural discharge, the conditions connoted by the concept of perennial yield[1] may not be reached for several centuries and virtually all the water used may be taken from storage. If pumping in such a locality is at a rate that will result during the course of 10 years in a lowering of water level to a depth from which it is not feasible to pump, pumping at half this rate would not cause this lowering in 100 years. However, the converse also is true. If past pumping in an aquifer of limited extent has caused only a moderate decline of water levels during the period of pumping, doubling the rate of pumping will in the future cause a decline of water level many times greater than past pumping.

7. Finally, even if a well discharges only a short time and draws its water for the time entirely from ground water in storage in the aquifer, eventually the aquifer must either discharge just that much less water through natural outlets or take in that much more water in the intake area. Hence, the cone of depression can have no ultimate limits short of at least one of the hydrologic boundaries of the aquifer.

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———1938, The significance and nature of the cone of depression in ground-water bodies: Econ. Geology, v. 33, no. 8, p. 889–902.

———1940, The source of water derived from wells: Am. Soc. Civil Engineers, Civil Eng., p. 277–280.

Wenzel, L. K., 1942, Methods for determining permeability of water-bearing materials: U.S. Geol. Survey Water-Supply Paper 887.

[1]Perennial yield of a ground-water basin may be defined as the rate at which ground water can be withdrawn year after year without depleting the ground-water storage to such an extent that withdrawal at this rate is no longer feasible because of increased pumping costs or deterioration of water quality.

Tab 5

Jan 9, 2026
Tab 5

Review Comments by Permit#

Permit Number: spr25-000052

File#	Permit#	Project Name	Route Name	Activity Type	Reviewer	Completion Date	Comment
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Fire Marshall Plans Review	John DeSimone	12/30/2025	No further comments or concerns with new rendition.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Postal Verification	John DeSimone	12/30/2025	Existing postal number will remain the same for this project. Needs to be clearly posted at the road.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	In evaluating a batch concrete plant similar to the 1910 Route 9 proposal, the Town of Clay NY relied on scientific data from studies published in peer reviewed journals. The conclusions from these studies validate the need to perform a Full EIS for this project in order to evaluate the potential risks to the environment and public health. In a 2021 study entitled "Asthma and Particulate Pollution: Insights from Health Survey and Air Quality Monitoring in the Buzzard Point, Washington DC Neighborhood" by Hseih et.al. (ENVIRONMENTAL JUSTICE, Volume 14, Number 4, 2021), the case study focused on asthma rates affected by air quality in a studied neighborhood located "next to concrete batch plants and close to several construction projects." Significantly, the study suggests that there is a correlation between air quality and respiratory symptoms (e.g., asthma). The increased particulate matter from the concrete batch plants associated with this neighborhood contributed significantly to the airborne particulate materials ("PM") and that short-event, high-PM exposures "may overwhelm

							the defensive mechanisms in the upper airway that normally protect the respiratory tract from coarse particles." A second study ("Assessing the Impact of Fugitive Dust Emissions from Cement Silos at a Cluster of Concrete Batching Facilities Using Air Dispersion Modeling" by Rady, et al.; Journal of Environmental Protection, 2023, 14, 373-391) compared PM emissions from "Controlled and Uncontrolled" Cement Silos and identified the hazards of cement dust to the environment and human health. It found that "uncontrolled or dis-repaired cement silos have no control efficiency" and resulted in PM releases 5.3 times higher than the World Health Organization (WHO) standards for air quality. Among other conclusions, this study found that the primary reason for high PM exceedance is the non-compliance of concrete batching facilities with "regulatory permit conditions" and that such conditions are not compatible with the surrounding community. The potential impact from such events on the residential areas near the Route 9 project must be assessed as part of a Full EIS.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	1. The ECC finds that this project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued, and a Full Environmental Impact Statement (EIS) be prepared. a. The ECC notes that this project is adjacent to the Dwaas Kill, a Class A trout stream, a C(T) stream and a 303D protected water way. The fishery contains both native and stocked brook trout. The town and its residents have a significant investment in the quality and the protection of this waterway (Dwaas Kill Nature Preserve). The proposed plant is located within approximately 180 feet of this important environmental resource. Concrete plants present several risks including but are not limited to air and water pollution as well as dust exposure. Given the proximity of the concrete plant to the Dwaas Kill the ECC is concerned about potential adverse

							environmental impacts. b. The ECC recognizes the potential impact to the water quality as trout in the Dwaas Kill are very sensitive to PH and all water quality changes. This project utilizes a gravel access road is porous in nature and therefore will be difficult to control pH changes to the groundwater and other potential contamination. c. This project is a complete change of use from a truck repair facility to a concrete batch plant, coupled with an expansion of the impervious area of over 125%, this project cannot be treated under the standard re-development regulations. This project shall be treated as a new development. Re-development only treats the water quality volume where a new project will need to treat the channel protection volume as well the extreme storm events. d. The ECC notes that the applicant's engineer was requested to provide additional technical documentation and quantifiable data to support their response to Town Code Chapter 208-64 F with particular attention to the levels of dust generated by the Concrete Batch Plant that may reach the Dwaas Kill and effect the pH levels. In addition, this may have a negative health impact.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	In considering a positive declaration the ECC notes the applicant in their long form EAF some identifiable concerns with parts D.2.i, in regard to dust particulate emissions, parts E.2. q (fishing), and E.3.h & i (public resources within 5 miles). These errors underscore the need for a Full EIS.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	Per Town Code Chapter 208-64 B. (1), "Assembling/fabrication, processing or light manufacturing of products, provided that such activity is not violative of the district regulations as set forth herein, and further provided that such activity does not result in any noxious noise or odor outside the district and does not have a deleterious effect on the air or water quality." The key characteristics of Light Industrial results in minimal environmental impacts of noise, dust, and vibrations. The ECC requests that the applicant demonstrate that this

							application will conform to the performance standards of the Town Code specifically to the noise, dust (i.e. technical documentation and quantifiable data on particulate matter), and vibration levels by providing measurement of noise and vibration levels.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	The ECC notes that if public water is going to be utilized then the private well on site shall be capped.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	ECC Review	Scott Reese	01/09/2026	Due to the heavy concrete construction vehicles the ECC would request a traffic study.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	SEQR Review	John Scavo	01/09/2026	Please see the attached review memo, and draft resolution I offer for the Planning Board's consideration regarding advancing the SEQR review process forward.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Zoning Plans Review	Scott Reese	01/13/2026	The Clifton Park Zoning Board of Appeals (ZBA) granted an area variance on June 3rd, 2025, from Town Code Chapter 208-65 D. Height. Permitted height of buildings and structures shall be 50 feet. The applicant proposed a 61 feet tall structure (drive thru cement bin). An area variance of 11 feet addition to the permitted height of 50 feet was granted by the ZBA.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete	Site Plan Review - Revised Preliminary	Zoning Plans Review	Scott Reese	01/13/2026	An Overview of Concrete Batch Plan Operations has been submitted. The overview describes the operation but does not provide technical documentation and quantifiable data to address Town Code Chapter 208-64 F (2) Discharge of toxic or noxious matter. The overview still needs to address how the proposed use will not

		Batch Plant)					result in any toxic or noxious matter outside the district and does not have a deleterious effect on the air or water quality and how the operation will not exceed any of the performance standards per Town Code Chapter 208-64 F.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Zoning Plans Review	Scott Reese	01/13/2026	It appears in the Noise Impact Assessment dated September 25, 2025, shows the calculated sound levels higher at Receptor Location R1 than what Town Code Chapter 208-64 (F)(1). Verify if the sound levels exceed the required 65 decibels at the property line.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Zoning Plans Review	Scott Reese	01/13/2026	Please see my zoning response letters dated January 13th, 2026, to the Planning Board for the comments sent by Riverkeeper, Inc. and Abrams | Fensterman, LLP.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Stormwater Review	Scott Reese	01/13/2026	The applicants engineer has the facility's primary Standard Industrial Classification Code (SIC) as 1442 - Construction Sand and Gravel. Please provide information on why SIC 3273 - Ready-Mixed Concrete is not being used.
25-000392	SPR25-000052	#2025-017 1910 Route 9 Commercial Buildings Site Plan (Concrete Batch Plant)	Site Plan Review - Revised Preliminary	Stormwater Review	Scott Reese	01/13/2026	Per the NYSDEC Stormwater Management Design Manual - July 31, 2024 Chapter 9: Redevelopment Activity Section 9.1 states "For redevelopment activities located in critical environmental areas and other sensitive environmental or regulated areas, all attempts should be made to seek compliance with the sizing criteria set elsewhere in the manual. It appears that this project drains to a sensitive environmental area (Land Conservation District). Per Town Code Chapter 208-69 "The purpose of the Land Conservation District (hereinafter "L-C") is to delineate, preserve, protect and conserve wetlands and streams and their respective regulated adjacent areas, as designated by the New York State

Tab 6

Tab 6

ENVIRONMENTAL JUSTICE
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Asthma and Particulate Matter Pollution: Insights from Health Survey and Air Quality Monitoring in the Buzzard Point, Washington, DC Neighborhood

Shizuka Hsieh,[i] Elgloria Harrison, Janet A. Phoenix, and Rhonda Hamilton

ABSTRACT

Air pollution, climate change, and other environmental factors contribute to increasing asthma in many cities, including Washington, DC. This work provides a case study of how community input, neighborhood-level health surveys, and air quality monitoring can inform the understanding of asthma and air pollution. A partnership between residents, concerned citizens, scientists, and educators has been working for environmental health in a DC neighborhood located on a major roadway, next to concrete batch plants and close to several construction projects. A 2016 Community Health and Safety Study by the DC Department of Health, Office of Health Equity, recognized this particular neighborhood as more vulnerable to health impacts from recent construction in the area, compared with the surrounding areas, due to lower average income and higher percentage of seniors and children. This work presents neighborhood health surveys and air quality monitoring data at a more granular, local level than available from DC government agencies. The health surveys documented residents' experiences around air pollution, asthma, and other health concerns. A key finding was evidence that asthma might be undercounted in this neighborhood; among residents who did not indicate a diagnosis of asthma, many discussed having symptoms that could reflect asthma. Air quality monitoring (particulate matter [PM]) did not indicate that federal air quality standards have been violated. Real-time PM data, however, illustrated how current PM standards, such as 1- and 24-hour averages, may fail to capture shorter duration high PM events that are consistent with resident concerns.

Keywords: asthma, health survey, particulate matter, environmental justice

INTRODUCTION

THE BUZZARD POINT NEIGHBORHOOD in southwest Washington, DC, faces traffic-related pollution and fugitive dust from concrete batching and major construction projects. It is bounded by a major roadway, S. Capitol Street (Fig. 1), whose traffic monitor near the Frederick Douglass Memorial Bridge has recorded high traffic volumes, with more than 40,000 vehicles per day (2015–2018).[1] Residents report anecdotally that traffic congestion on S. Capitol Street is often high, especially

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[i]ORCID ID (https://orcid.org/0000-0001-6429-4309).

[1]District of Columbia Department of Transportation. Traffic Volume Maps. <https://ddot.dc.gov/am/page/traffic-volume-maps>. (Last accessed on September 11, 2020).

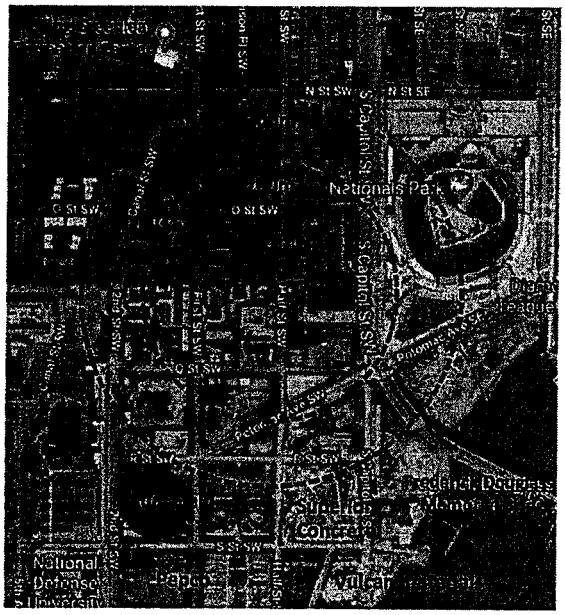


FIG. 1. Map of Buzzard Point neighborhood showing proximity to two sports stadiums (Audi Field and Nationals Park), two concrete plants (Superior Concrete and Vulcan Materials), and an electrical substation (Pepco). South Capitol Street, a major thoroughfare, runs between the neighborhood and Nationals Park. The Frederick Douglass Memorial Bridge has some of the highest traffic volumes in DC, and a replacement bridge is being built alongside it. A DOEE $PM_{2.5}$ monitor is housed at the King Greenleaf Recreation Center. The neighborhood monitor (depicted by a *red star*) is housed on the second floor of an apartment complex. Image from Google Maps. DOEE, Department of Energy and the Environment; PM, particulate matter. Color images are available online.

when there are games being held at one of the two stadiums. Higher traffic volumes and engine idling translate to higher levels of air pollution.[2] Construction activities have also increased neighborhood truck traffic.

Sources of particulate matter (PM) also include industrial sources and fugitive dust from demolition and construction.[3,4] Major construction has included a new electrical power station (Pepco), a 20,000-seat stadium (Audi Field), and a replacement construction project for a major bridge (Frederick Douglass Memorial Bridge), which will soon be followed by demolition of the old bridge. In addition, there are concrete batch plants (Superior Concrete and Vulcan Materials) in proximity to low-income public housing units and garden-style townhomes, most of which are low rise and lack central ventilation. One of the concrete batch plants, Superior Concrete Materials, renewed its permit during the monitoring period. That facility was recently penalized for violations of the Clean Air Act before the repermitting. The two counts were operating without a required operating permit and with a stationary engine.[5]

During the construction of Audi Field (July 2016–July 2018), fence-line monitoring conducted by the DC Department of Energy and the Environment (DOEE) and Haley and Aldrich Consulting Company provided further evidence for fugitive dust and diesel pollution. For each exceedance of their air quality action level, DOEE and/or Haley and Aldrich documented the cause and the action taken for dust mitigation. Several times it was determined that the source of high PM_{10} was not stadium construction, but instead, the adjacent concrete batching plants. There were also events where diesel fumes, rather than construction dust, triggered the action level. These findings implicate concrete batching and diesel as pollution sources, in addition to demolition and construction, affecting the neighborhood.

Fugitive dust, commercial truck traffic, construction noise, and traffic-related pollution are just a few of the many issues this community faces. In response to resident health concerns, the DC Department of Health Office of Health Equity conducted the *2016 Buzzard Point Community Health and Safety Study* (CHASS).[6] Meetings with the city agencies responsible for oversight have occurred throughout the construction and concrete batch plant repermitting processes. However, residents have felt that the recommendations laid out in the CHASS have not been adequately followed, and that the community still has an unfair burden of pollution.[7,8,9]

[2]Vickie L. Boothe and Derek G. Shendell. "Potential Health Effects Associated with Residential Proximity to Freeways and Primary Roads: Review of Scientific Literature, 1999–2006." *Journal of Environmental Health* 70 (2008): 33–41, 55–56.

[3]James G. Wagner, Masako Morishita, Gerald J. Keeler, and Jack R. Harkema. "Divergent Effects of Urban Particulate Air Pollution on Allergic Airway Responses in Experimental Asthma: A Comparison of Field Exposure Studies." *Environmental Health* 11 (2012): 45.

[4]Lindsay Wichers Stanek, Jason D. Sacks, Steven J. Dutton, and Jean-Jacques B. Dubois. "Attributing Health Effects to Apportioned Components and Sources of Particulate Matter: An Evaluation of Collective Results." *Atmospheric Environment* 45 (2011): 5655–5663.

[5]US EPA News Releases. EPA settlement penalizes Superior Concrete Materials for Clean Air Act violations at former DC location, 2020. <https://www.epa.gov/newsreleases/epa-settlement-penalizes-superior-concrete-materials-clean-air-act-violations-former-dc>. (Last accessed on September 10, 2020).

[6]District of Columbia Department of Health, Office of Health Equity. Buzzard Point Community Health and Safety Study (CHASS). 2016. <https://doh.dc.gov/sites/default/files/dc/sites/doh/page_content/attachments/Buzzard%20Point%20Community%20Health%20and%20Safety%20Study%20(CHASS)%20August%202016.pdf>. (Last accessed on December 11, 2018).

[7]Rhonda Hamilton. "Opinion: DC development is leaving historic black communities in the dust," *The Washington Post*, 9 March 2018.

[8]Courtland Milloy. "Perspective: New stadium, new restaurants, and more dust and pollution for the poorest residents of Southwest Washington." *The Washington Post*, 6 May 2018.

[9]Her Chesapeake. Telling the Stories of Buzzard Point. 2018. <https://www.herchesapeake.com/blog/2018/4/2/telling-the-stories-of-buzzard-point>. (Last accessed on December 11, 2018).

Air pollution and asthma

Emerging and convincing evidence suggests that traffic-related-air-pollution (TRAP) increases the burden of asthma in children in urban areas[10,11,12] and that low-income and African American families are more severely impacted.[13] An estimate of the number of asthma cases in the United States for 2000 and 2010 found an increase in asthma rates that was higher in urban areas and in blocks with the lowest household incomes.[14] Low-income and African American families are exposed to higher levels of fine PM ($PM_{2.5}$) and ozone, and many low-income neighborhoods in urban cities are located near major highways where exposure to these pollutants occurs more frequently.[15] Along with ozone and nitrogen dioxide, $PM_{2.5}$ induces airway inflammation and airway hypersensitivity, two characteristics common in children and adults with asthma.[16]

African Americans live disproportionately near facilities that emit PM.[17] Studies have shown that short-term exposure to PM_{10} (PM smaller than 10 μm in diameter) and $PM_{2.5}$ (PM smaller than 2.5 μm in diameter) has been associated with increased asthma symptoms, while long-term exposure has been linked to poor asthma control and decreased lung function.[18] Smaller particles penetrate further into the lungs bypassing natural barriers such as cilia in the nose that trap larger particles. Asthma outcomes are likely not only to be due to the size of PM but also on its chemical composition.[19,20]

Additional factors may work together with TRAP to make low-income and African American families more vulnerable to asthma. A study of the association of air pollution and other factors with asthma hospitalizations found that residence near industrial areas, African American race, $PM_{2.5}$ annual average, Medicaid eligibility or no insurance, obesity, and poverty were associated with an increased likelihood of hospital visits for asthma. While air pollution was a major factor, it could not be singled out as the only one to increase the risk of asthma exacerbation.[21]

Health and air quality in Buzzard Point

In 2016, the DC Department of Health's Office of Health Equity released a Buzzard Point CHASS.[22] The study addressed the 20024 Zip Code within Ward 6, but also focused on the census tract that maps onto the Buzzard Point neighborhood, CT064 (Fig. 2). The study documented how, compared with those living in other neighborhoods within the 20024 Zip Code, CT064 residents are mainly African American, of lower socioeconomic status, and have a higher use of Medicaid or Medicare insurance coverage. Indices of economic well-being, including senior poverty, families with female heads of households, teen births, and unemployment, were all higher in CT064 than in DC overall. These point to a distressed neighborhood, with potentially more vulnerability to poor environmental quality because of the inability to economically cushion family members from adverse environmental exposures.[23] While census-tract-level analysis in the CHASS revealed how residents have socioeconomic disadvantages compared with the surrounding areas, the study did not provide health outcomes at the census-tract level. Measures of health outcomes by census tract might provide more precise estimates. Our survey used a survey instrument adapted

[10]Raed Alotaibi, Mathew Bechle, Julian D. Marshall, Tara Ramani, Josias Zietsman, Mark J. Nieuwenhuijsen, and Haneen Khreis. "Traffic Related Air Pollution and the Burden of Childhood Asthma in the Contiguous United States in 2000 and 2010." *Environment International* 127 (2019): 858–867.

[11]Ralph J. Delfino, Jun Wu, Thomas Tjoa, Sevan K. Gullesserian, Bruce Nickerson, and Daniel L. Gillen. "Asthma Morbidity and Ambient Air Pollution: Effect Modification by Residential Traffic-Related Air Pollution." *Epidemiology* 25 (2014): 48–57.

[12]Janice J. Kim, Svetlana Smorodinsky, Michael Lipsett, Brett C. Singer, Alfred T. Hodgson, and Bart Ostro. "Traffic-Related Air Pollution near Busy Roads: The East Bay Children's Respiratory Health Study." *American Journal of Respiratory and Critical Care Medicine* 170 (2004): 520–526.

[13]Delfino *et al.* "Asthma Morbidity and Ambient Air Pollution: Effect Modification by Residential Traffic-Related Air Pollution." (2014). *Op. cit.*

[14]Alotaibi *et al.* "Traffic Related Air Pollution and the Burden of Childhood Asthma in the Contiguous United States in 2000 and 2010." (2019). *Op. cit.*

[15]Nicholas Z. Muller, Peter Hans Matthews, and Virginia Wiltshire-Gordon. "The Distribution of Income Is Worse than You Think: Including Pollution Impacts into Measures of Income Inequality." *PLoS One* 13 (2018): e0192461.

[16]Michael Guarnieri and John R. Balmes. "Outdoor Air Pollution and Asthma." *The Lancet* 383 (2014): 1581–1592.

[17]Ihab Mikati, Adam F. Benson, Thomas J. Luben, Jason D. Sacks, and Jennifer Richmond-Bryant. "Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status." *American Journal of Public Health* 108 (2018): 480–485.

[18]Guarnieri and Balmes. "Outdoor Air Pollution and Asthma." (2014). *Op. cit.*

[19]Wagner *et al.* "Divergent Effects of Urban Particulate Air Pollution on Allergic Airway Responses in Experimental Asthma: A Comparison of Field Exposure Studies." (2012). *Op. cit.*

[20]Stanek *et al.* "Attributing Health Effects to Apportioned Components and Sources of Particulate Matter: An Evaluation of Collective Results." (2011). *Op. cit.*

[21]Daniele Pala, José Pagán, Enea Parimbelli, Marica Teresa Rocca, Riccardo Bellazzi, and Vittorio Casella. "Spatial Enablement to Support Environmental, Demographic, Socioeconomics, and Health Data Integration and Analysis for Big Cities: A Case Study With Asthma Hospitalizations in New York City." *Frontiers in Medicine* 6 (2019): 84.

[22]District of Columbia Department of Health, Office of Health Equity. Buzzard Point Community Health and Safety Study (CHASS). (2016). *Op. cit.*

[23]Ibid.

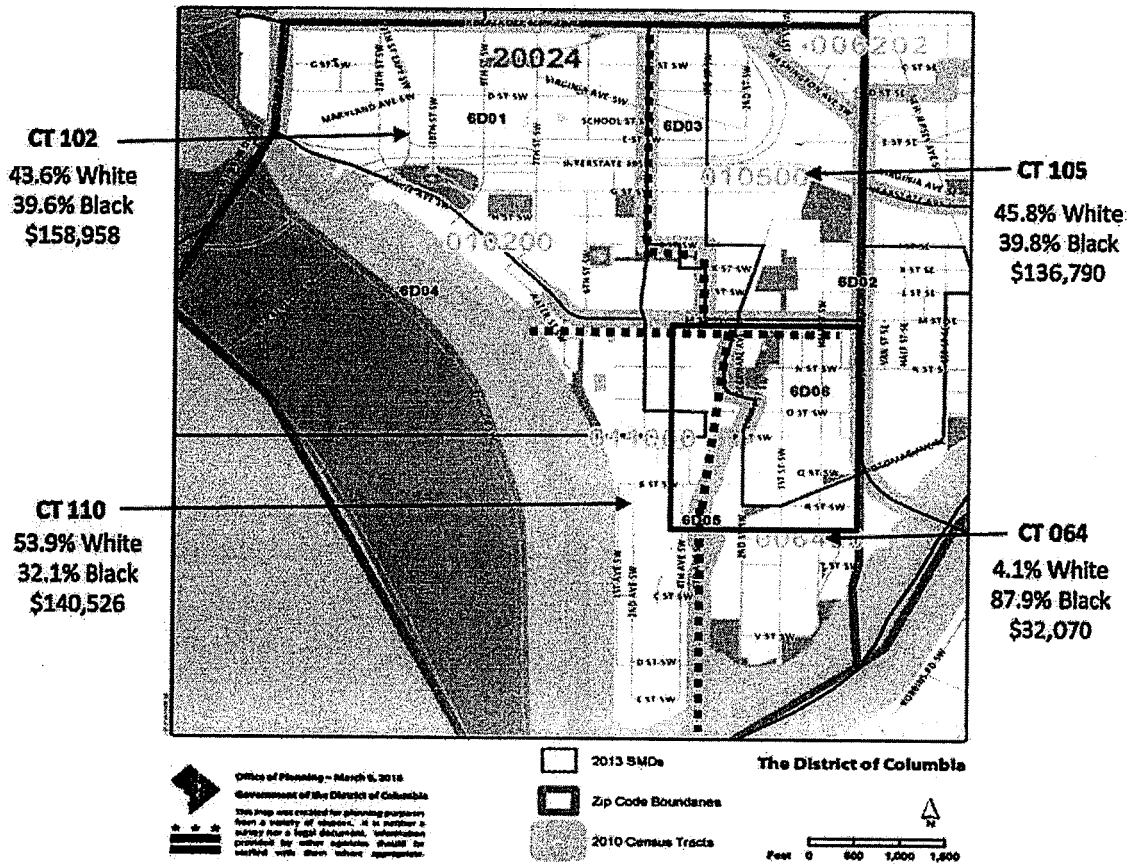


FIG. 2. Demographics (% population and mean family incomes) of Buzzard Point. Adapted figure from the Buzzard Point Community Health and Safety Study by the DC Department of Health, Office of Health Equity. Percentages are 2010–2014 population estimates. The *blue square* marks the area represented in Figure 1. Color images are available online.

from the Behavioral Risk Factor Surveillance survey, which asked questions about asthma diagnosis as well as asthma symptoms and severity of asthma symptoms.[24,25,26] Prompted by this gap in health data, our partnership worked with residents at the community level to gain a better portrayal of asthma and health in CT064.

Studies from communities where associations between respiratory symptoms and air quality were directly measured[27,28] underscore the need for collecting data, enabling localized conditions such as proximity to pollution point sources to be correlated with health outcomes. Current stationary monitoring can fail to capture pollution hotspots, but a denser network of portable monitors, with high spatial resolution, can better capture local pollution that affects health outcomes.[29] At the time of the beginning of this study, the closest DOEE air quality

[24]Carolyn A. Mendez-Luck, Hongjian Yu, Ying-Ying Meng, Mona Jhawar, and Steven P. Wallace. "Estimating Health Conditions for Small Areas: Asthma Symptom Prevalence for State Legislative Districts." *Health Services Research* 42 Pt 2 (2007): 2389–2409.

[25]Christer Janson, Ane Johannessen, Karl Franklin, Cecilie Svanes, Linus Schiöler, Andrei Malinovschi, Thorarinn Gislason, *et al.* "Change in the Prevalence Asthma, Rhinitis and Respiratory Symptom over a 20 Year Period: Associations to Year of Birth, Life Style and Sleep Related Symptoms." *BMC Pulmonary Medicine* 18 (2018): 152.

[26]Bisgaard, Hans, and Stanley Szefler. "Prevalence of Asthma-like Symptoms in Young Children." *Pediatric Pulmonology* 42 (2007): 723–728.

[27]Pala *et al.* "Spatial Enablement to Support Environmental, Demographic, Socioeconomics, and Health Data Integration and Analysis for Big Cities: A Case Study With Asthma Hospitalizations in New York City." (2019). *Op. cit.*

[28]Kim *et al.* "Traffic-Related Air Pollution near Busy Roads: The East Bay Children's Respiratory Health Study." (2004). *Op. cit.*

[29]Pala *et al.* "Spatial Enablement to Support Environmental, Demographic, Socioeconomics, and Health Data Integration and Analysis for Big Cities: A Case Study With Asthma Hospitalizations in New York City." (2019). *Op. cit.*

monitors were over a mile away. In 2018, DOEE placed a Federal Reference Method (FRM) $PM_{2.5}$ monitor in the neighborhood, on the roof of King Greenleaf Recreation Center, which is about 700 m away from the emission sources (Fig. 2). *This study fills data gaps by monitoring PM in the neighborhood prior to 2018, by capturing pollution about 300 m away from emission sources (Fig. 2), and by taking measurements in real time (one-minute averages).*

Proximity to emission sources was important since studies have shown how PM will be higher closer to sources than far away, with significant differences on a scale of several hundred meters. For example, in a region with good air quality, students at schools <300 m downwind from major roadways had higher incidences of asthma.[30] Some traffic-related pollutants dissipate within 50–100 m away from roadways.[31] Several hundred meters make a difference for fugitive dust as well. In one study, PM_{10} from a construction site fell 50% within 80 m,[32] and extrapolating the decay profile indicates that PM_{10} from the source could be over four times higher at 300 m versus 700 m away.

Through outreach activities conducted and coordinated by its Advisory Neighborhood Commissioner (ANC), Rhonda Hamilton, members from the community, university partners, and other interested members formed a nonprofit community organization called Near Buzzard Point Resilient Action Committee, to focus attention on the role of environmental pollution and health conditions affecting community residents. The resulting community-based data presented here illustrate the importance of working at the neighborhood level for a better understanding of local environmental conditions believed to contribute to poor health outcomes.

METHODS

Health survey and focused educational session

The survey was distributed through group educational sessions at a public housing complex (red star in Fig. 1). These were small group settings with ~8 to 10 participants. The principal investigator read aloud the consent form to participants before the participants providing their written permission to participate. The participants signed the consent and completed the survey. A survey was considered complete when all questions were answered and returned to the principal investigator. All participants were permanent residents of the Buzzard Point neighborhood, and those who were not were excluded from data collection. Participants were recruited largely by the ANC, Ms. Hamilton, during the week. Sessions were held mostly in the evenings and on weekends. IRB was approved through the George Washington University (IRB#051729).

The survey (provided in the Supplementary Data) collected demographic information and responses to 36 open-ended, closed-ended, and Likert-scale questions/statements (hereafter "questions") to assess health status and health perceptions. This was an educational intervention study using a paper survey with validated questions from the CDC Behavioral Risk Factor Surveillance System (BRFSS)[33] for the District of Columbia standardized survey instrument. BRFSS survey asked two important questions that we considered an indication of asthma and chronic obstructive pulmonary disease (COPD) recognizing that those who had asthma may also report having COPD. This is a comprehensive instrument; however, only questions related to quality of life, chronic diseases or illnesses, and demographics were asked. The survey tool also used the World Health Organization (WHO) quality-of-life scale.[34] Our self-reported survey responses do not permit us to tease out differences in respiratory illness in the population that responded.

Following survey completion, residents received a short demonstration on identifying asthma signs and symptoms, and on how air pollution and climate change can affect those with breathing problems. This was a hands-on demonstration with various asthma models and HEPA filter room air purifier to show that residents understood how to recognize asthma symptoms and how to use a room air purifier. The educational sessions provided participants with the knowledge and skills essential for identifying asthma symptoms and the various tools that could be used to manage asthma. Educational sessions also provided information about climate change and on how to use an air purifier to filter harmful PM and improve home indoor air quality.

PM monitoring

The neighborhood monitor (red star in Fig. 1) was located on the second-floor level of a residential apartment complex. It sampled air from outside the window through tubing. One-minute PM averages of 1-second readings were recorded using a TSI DustTrak DRX laser particle counter that reports fractions by size ($PM_{2.5}$ and PM_{10}).

[30]Kim *et al.* "Traffic-Related Air Pollution near Busy Roads: The East Bay Children's Respiratory Health Study." (2004). *Op. cit.*

[31]Luz T. Padró-Martínez, Allison P. Patton, Jeffrey B. Trull, Wig Zamore, Doug Brugge, and John L. Durant. "Mobile Monitoring of Particle Number Concentration and Other Traffic-Related Air Pollutants in a near-Highway Neighborhood over the Course of a Year." *Atmospheric Environment* 61 (2012): 253–264.

[32]Farhad Azarmi, and Prashant Kumar. "Ambient Exposure to Coarse and Fine Particle Emissions from Building Demolition." *Atmospheric Environment* 137 (2016): 62–79.

[33]DC Department of Health, Behavioral Risk Factor Surveillance System Annual Report. 2017. <https://dchealth.dc.gov/sites/default/files/dc/sites/doh/publication/attachments/BRFSS%202017%20Annual%20Report%20Final.pdf>. (Last accessed on September 16, 2020).

[34]David G. Moriarty, Mathew M. Zack, and Rosemarie Kobau. "The Centers for Disease Control and Prevention's Healthy Days Measures—Population Tracking of Perceived Physical and Mental Health over Time." *Health and Quality of Life Outcomes* 1 (2003): 37.

Because laser particle counters are known to give $PM_{2.5}$ readings that are consistently higher than instruments used for regulatory purposes (FRM),[35] there are limitations to the conclusions that can be drawn from the measurements. Deviations from FRM also depend on weather conditions and particle size.[36] PM_{10} data reported here are directly from DustTrak readings. Previous work[37] using the same instrument included $PM_{2.5}$ calibration. $PM_{2.5}$ data reported here are calibrated, using the same method as before.

RESULTS

Health survey

The survey was a convenience sampling of 97 individuals, roughly 4% of the census tract population of 2569 for CT064.[38] Responses are in Supplementary Tables S2–S7 and shown graphically in Supplementary Figure S2. Figure 3 shows the respondents' demographics, compared with CT064 as a whole. Respondents were overwhelmingly female. One in five respondents was 65 years and older, a higher percentage compared with CT064 as a whole (13%[39]). The majority ($n=91$, 94%) identified as African American, similar to the 89.7% black non-Hispanic reported for CT064 in 2012[40] and 74% black in 2018.[41] However, respondents were less likely to be married or to have a college degree, compared with CT064 as a whole. Respondents' income distribution was consistent with CT064. The average income for CT064 was $32,070 for 2010–2014, with an 18.7% unemployment rate and 47% in poverty.[42] The 2018 census data list a median household income of $30,991 and a 35% poverty rate. Table 1 shows generally poorer self-reported health outcomes for survey respondents, compared with DC as a whole.

Almost half ($n=39$) of those surveyed reported that they had been told at some point that they had asthma, and the majority ($n=32$) reported that they still had asthma. We did find that there was an overlap ($n=16$) of those who reported asthma and COPD diagnoses. Most received their asthma diagnosis when they were young (Fig. 4). In addition to those diagnosed with asthma, 24 reported experiencing some symptoms of asthma, despite having no asthma diagnosis. Both groups report similarly on questions about their general health (Supplementary Fig. S1). NIH standards provide an asthma severity classification, which indicates asthma burden in participants.[43] The four classifications are in Supplementary Table S1. Figure 5 profiles survey respondents in the two groups, after classification according to these NIH standards. Some cases lacked enough symptoms for a clear classification but presented close to intermittent asthma. These were categorized as "almost intermittent."

Figure 6 shows responses to questions that probed participants' views on environmental hazards. Nearly 50% felt that air pollution had affected them personally or had affected a family member or friend. Those with an asthma diagnosis ($n=39$) and those with asthma symptoms but no diagnosis ($n=24$) were more likely to report that air pollution had affected them individually than those who did not have asthma or asthma symptoms ($n=26$). The top three environmental issues that concerned most residents were air pollution, traffic/congestion, and pollution of our waterways.

Air quality monitoring

Neighborhood $PM_{2.5}$ was below the U.S. Environmental Protection Agency (U.S. EPA) and WHO standards (Table 2). Table 2 shows higher neighborhood 24-hour PM_{10} averages than the WHO guidelines, but because PM_{10} readings were not calibrated against an FRM monitor, we cannot conclude that there were actual exceedances. DOEE monitors both PM_{10} and $PM_{2.5}$ at the MacMillan Reservoir. Neighborhood PM_{10} 24-hour averages showed weaker correlation with the MacMillan Reservoir than $PM_{2.5}$ (Supplementary Fig. S3).

For the Audi Field construction project, the action level for dust mitigation was defined as when a 15-minute rolling average during work hours exceeded 100 $\mu g/m^3$ at the fenceline, as measured by a DustTrak, the same type of instrument as the neighborhood monitor. Applying this criterion to the neighborhood data revealed that PM_{10} met the action level frequently, sometimes several times a week (Fig. 7).

[35]Albert Chung, Daniel P.Y. Chang, Michael J. Kleeman, Kevin D. Perry, Thomas A. Cahill, Dabrina Dutcher, Eric M. McDougall, and Kenneth Stroud. "Comparison of Real-Time Instruments Used To Monitor Airborne Particulate Matter." *Journal of the Air & Waste Management Association* 51 (2001): 109–120.

[36]Jie Zhang, Joseph P. Marto, and James J. Schwab. "Exploring the Applicability and Limitations of Selected Optical Scattering Instruments for PM Mass Measurement." *Atmospheric Measurement Techniques* 11 (2018): 2995–3005.

[37]Amanda L. Northcross, Shizuka Hsieh, Sacoby Wilson, Ebony Roper, Russell R. Dickerson, Parisa Norouzi, and Vernon Morris. "Monitoring Neighborhood Concentrations of PM $_{2.5}$ and Black Carbon: When Using Citywide Averages Underestimates Impacts in a Community with Environmental Justice Issues." *Environmental Justice* 13 (2020): 27–35.

[38]Census Reporter, Census Tract 64, District of Columbia. 2019. <https://censusreporter.org/profiles/14000US11001006400-census-tract-64-district-of-columbia-dc/>. (Last accessed on October 8, 2020).

[39]Ibid.

[40]District of Columbia Department of Health, Office of Health Equity. Buzzard Point Community Health and Safety Study (CHASS). (2016). *Op. cit.*

[41]Census Reporter, Census Tract 64, District of Columbia. (2019). *Op. cit.*

[42]District of Columbia Department of Health, Office of Health Equity. Buzzard Point Community Health and Safety Study (CHASS). (2016). *Op. cit.*

[43]National Heart Lung Blood Institute. Asthma care quick reference: Diagnosing and managing asthma. 2011. <https://www.nhlbi.nih.gov/files/docs/guidelines/asthma_qrg.pdf>. (Last accessed on September 16, 2020).

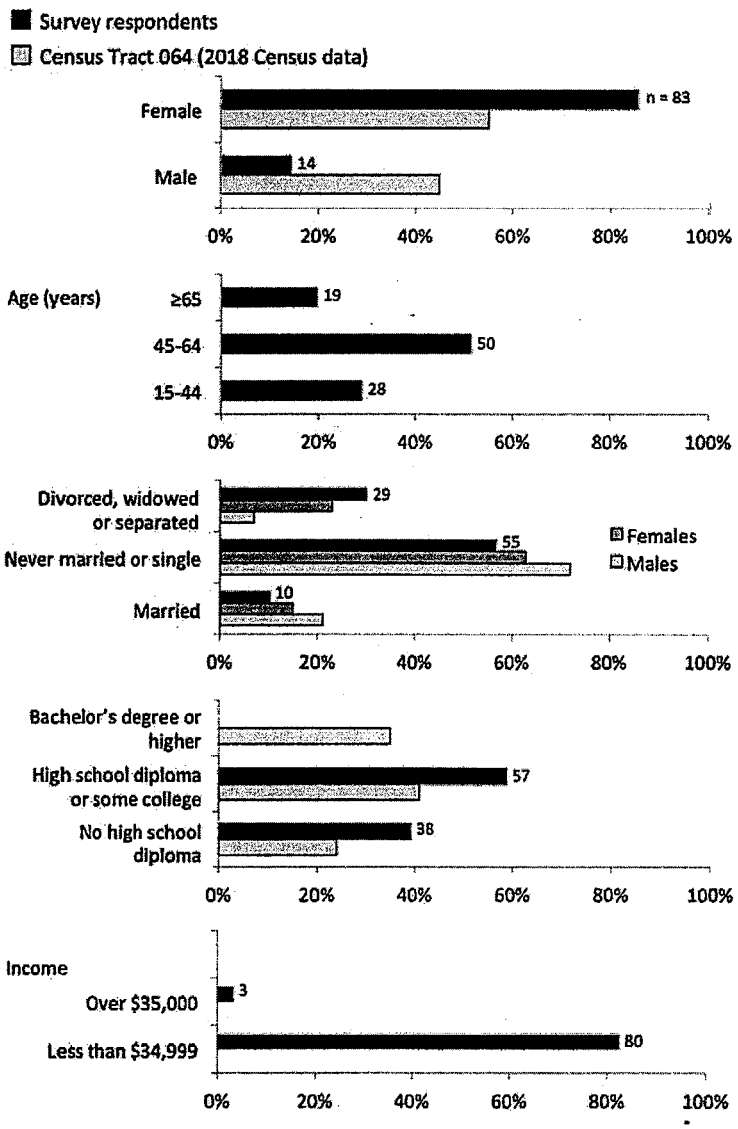


FIG. 3. Demographics of survey respondents ($n=97$, *black*) compared with data for CT064 as whole (*gray*). Census tract data are from 2018 (5-year average) found online. Some fields are missing in the figure because categorization of age and income differs between census data and survey response data. Numbers of respondents who gave a particular answer are listed. Not shown are the numbers who did not answer a question.

DISCUSSION

Health surveys

The CHASS report described health data at the zip code level. Chronic lower respiratory diseases were among the top 5 causes of death. Along with cardiovascular diseases, cancer, and accidents, the zip code had a slightly higher death rate for lung cancer. The zip code had a higher prevalence of adult asthma than both DC and the nation as a whole (Table 3), similar to rates in Wards 4, 5, 7, and 8, where more low-income and African Americans reside, and higher than Ward 3, which has the highest income and a higher percentage of Caucasians.

This study was motivated by community residents who felt that the zip code level reporting of health outcomes failed to capture their realities. While the health survey data presented here may not be generalizable to the entire CT064 census tract, a known limitation to community-based research,[44] Figure 3 illustrates how the survey respondents include those more vulnerable. They represent a higher percentage of women, elderly people, not currently married, and those without college degrees compared with the census tract as a whole.

By focusing on the residents in the poorest and least white census tract within the zip code, this study begins to illustrate health disparities that were not as apparent in the CHASS zip code level. While zip code 20024 and DC

[44]Cheryl Merzel and Joanna D'Afflitti. "Reconsidering Community-Based Health Promotion: Promise, Performance, and Potential." *American Journal of Public Health* 93 (2003): 557–574.

TABLE 1. INDICATORS OF GENERAL HEALTH FOR SURVEY RESPONDENTS IN THE BUZZARD POINT NEIGHBORHOOD COMPARED WITH OTHER AREAS OF DISTRICT OF COLUMBIA

	DC	*Whites in DC*	*African Americans/Blacks in DC*	*20024 zip code*	*Buzzard Point neighborhood survey*
Self-reported health as *fair or poor*	12.8[a]	NA	NA	11.2[a]	40.2
Have health insurance	94.7[b]	NA	NA		90.7
Asthma: self-reported or self-reported as diagnosed	10.8[a]	NA	NA	12.7[a]	42.3
Ever told to have asthma	9.4[b]	5.9[b]	14.2[b]	NA	42.3
Ever told to have a heart attack	2.7[b]	1.7[b]	4.3[b]	NA	6.2
Ever told to have angina or coronary heart disease	1.9[b]	1.8[b]	2.6[b]	NA	9.3
Ever told to have a stroke	3.2[b]	0.9[b]	6.0[b]	NA	9.3
Ever told to have cancer	4.2[b]	5.2[b]	4.9[b]	NA	10.3
Ever told to have COPD, emphysema, chronic bronchitis	5.1[b]	2.5[b]	8.5[b]	NA	27.8
Ever told to have some form of arthritis, gout, lupus, fibromyalgia	14.3[b]	11.1[b]	21.2[b]	NA	48.5
Ever told to have diabetes	7.5[b]	3.6[b]	13.1[b]	NA	19.6

[a]Source: District of Columbia Department of Health, Office of Health Equity, "Buzzard Point Community Health and Safety Study, (CHASS). 2016. <https://doh.dc.gov/sites/default/files/dc/sites/doh/page_content/attachments/Buzzard%20Point%20Community%20Health%20and%20Safety%20Study28CHASS%29%20August%202016.pdf>.

[b]Source: DC Department of Health, Behavioral Risk Factor Surveillance System Annual Report. 2017. <https://dchealth.dc.gov/sites/default/files/dc/sites/doh/publication/attachments/BRFSS%202017%20Annual%20Report%20Final.pdf>.

COPD, chronic obstructive pulmonary disease; NA, not available.

had similar percentages of self-reported health as *fair or poor*, as opposed to *good or better*, 12.8% in DC and 11.2% in zip code 20024,[45] the percentage among survey respondents was 40.2% (Fig. 3 and Table 1). While zip code 20024 had a higher asthma rate compared with DC (Table 3),[46] 42.3% of respondents reported an asthma diagnosis. Compared with DC as a whole, respondents also indicated adverse health outcomes at higher rates (Table 1).

Health insurance coverage was similar for respondents with the rest of DC, as 90.7% indicated health insurance coverage, compared with 97% in DC overall.[47] The majority (84 out of 97) had at least one health care provider and had been to a routine checkup within the last year (76 out of 97). Cost was an obstacle for residents obtaining health care. Almost a quarter (24 out of 97) reported not seeing a doctor when needed because of cost, on par with a national estimate of 1 in 4 Americans in 2020.[48] It follows that residents' poor health compared with other parts of DC is not caused by a lack of health care. We acknowledge that health care is complex and there are far more reasons that residents may experience lack in health care such as limited transportation as an example; however, our survey questions were limited to the CDC BRFSS validated instrument.

Of the health indicators in Table 1, asthma prevalence was significantly high. Many who did not indicate a diagnosis of asthma discussed having respiratory symptoms consistent with asthma or chronic bronchitis. While 42.3% indicated having been diagnosed with asthma,

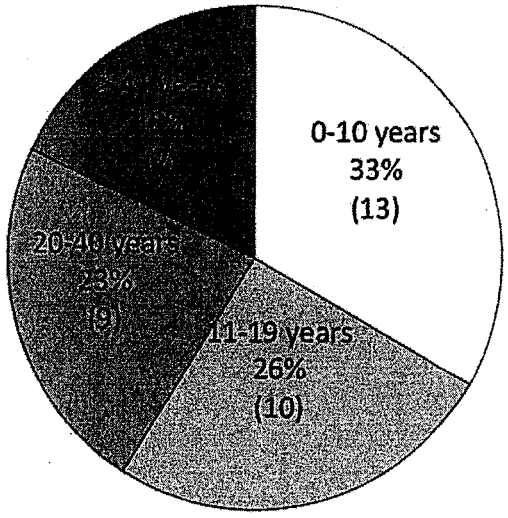


FIG. 4. Range of ages at which surveyed residents with asthma received their diagnoses, younger than age 20 for 59% and age 20 years and older for 41%.

[45]District of Columbia Department of Health, Office of Health Equity. Buzzard Point Community Health and Safety Study (CHASS). (2016). *Op. cit.*

[46]Ibid.

[47]DC Department of Health, Health Equity Report, Executive Summary. 2018. <https://dchealth.dc.gov/sites/default/files/dc/sites/doh/publication/attachments/HER%20Summary%20Report%20FINAL%20with%20letter%20and%20table_02_08_2019.pdf>. (Last accessed on September 12, 2020).

[48]The Henry J. Kaiser Family Foundation. "Uninsured and Untreated, A Look at Uninsured Adults Who Received No Medical Care for Two Years. *The Henry J. Kaiser Family Foundation, Medicaid and the Uninsured.* July 2010. <https://www.kff.org/health-reform/issue-brief/uninsured-and-untreated-a-look-at-uninsured/>. (Last accessed on September 12, 2020).

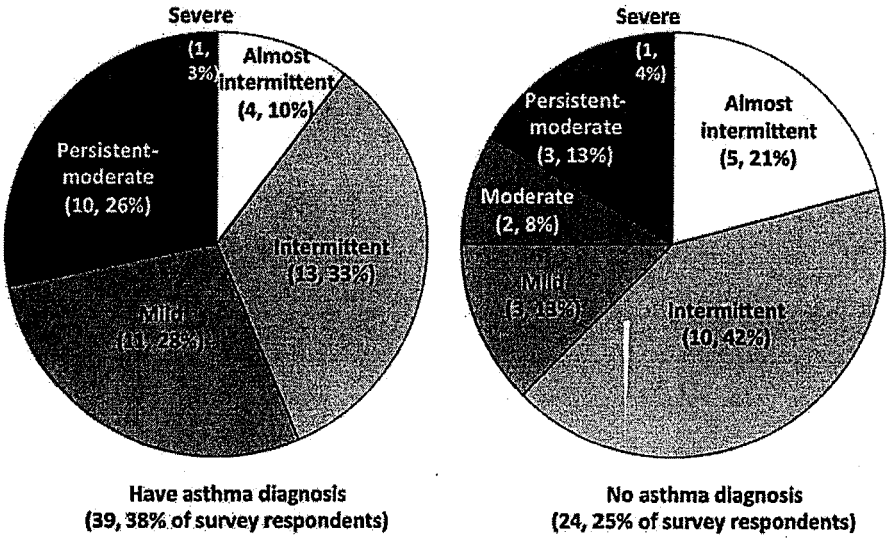
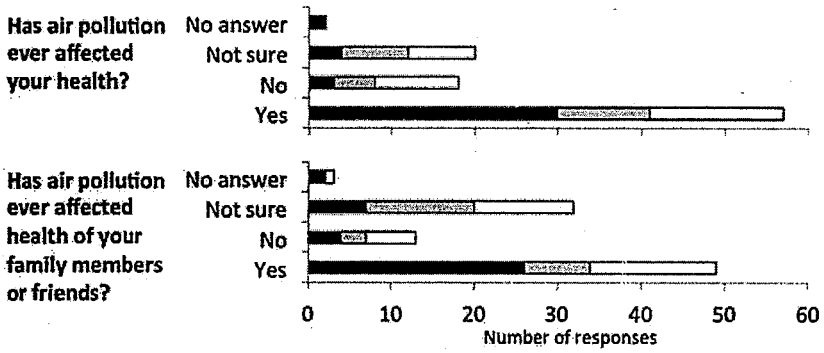


FIG. 5. Classification of asthma severity for those diagnosed with asthma (*left*) and those without a diagnosis but reported experiencing asthma symptoms (*right*). A total of 63 survey respondents reported asthma symptoms, out of the total of 97 who responded to the survey.



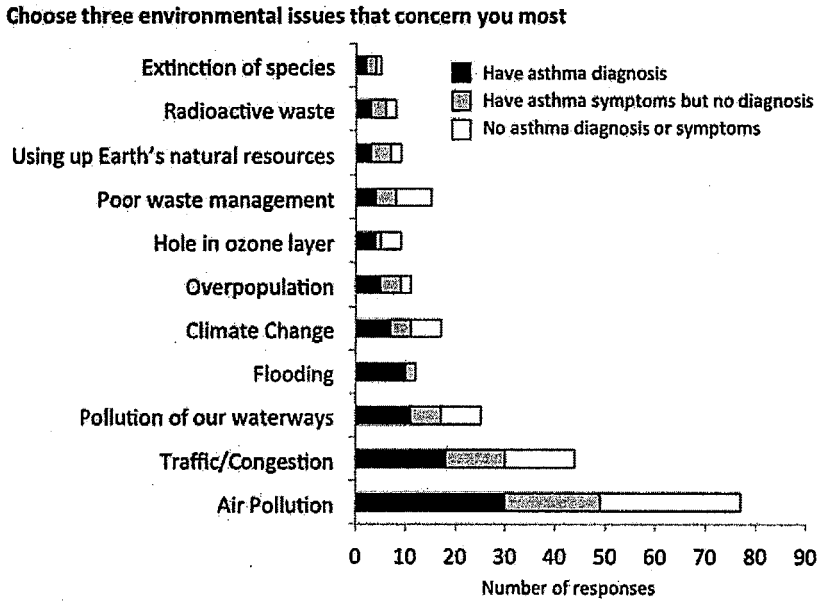


FIG. 6. Perceptions about environmental hazards.

TABLE 2. NEIGHBORHOOD PARTICULATE MATTER AVERAGES COMPARED WITH U.S. ENVIRONMENTAL PROTECTION AGENCY AND WORLD HEALTH ORGANIZATION LIMITS

	U.S. EPA ($\mu g/m^3$)[a]	*WHO ($\mu g/m^3$)*[b]	*Neighborhood ($\mu g/m^3$)*[c]
$PM_{2.5}$ 24-hour average	35	25	21.8, 20.7, 18.7, 18.5, 17.3
$PM_{2.5}$ annual average	12	10	7.9, 8.2, 7.2
PM_{10} 24-hour average	150	50	66.0, 63.2, 56.6, 54.5, 53.5
PM_{10} annual average	none	20	19.7, 20.0, 15.6

[a]Source: U.S. EPA, Particulate Matter (PM) Pollution. <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>

[b]Source: WHO, Air Quality Guidelines. <https://www.who.int/airpollution/publications/aqg2005/en/>

[c]For 24-hour averages, listed values are the top five values over the monitoring period. Annual averages are for 7/26/16–17, 7/26/17–18, and 7/26/18–19, respectively.

PM, particulate matter; U.S. EPA, U.S. Environmental Protection Agency; WHO, World Health Organization.

64.9% had either a diagnosis or symptoms of asthma. Those meeting the NIH classification of intermittent or more serious asthma comprised 55.7%. Individuals whose responses would classify them as having severe or persistent-moderate asthma included those who indicated no asthma diagnosis. More than half of the participants who self-disclosed having an asthma diagnosis were diagnosed during childhood or adolescence, while a third self-disclosed diagnosis as adults. Adult-onset asthma is a common occurrence, affecting 235 million people worldwide and causing 350,000 deaths each year.[49] Asthma diagnosed later in life appears to be more severe and progressive. Those who were diagnosed during childhood or adolescence appear to have less severe asthma, and remission is common.[50] This work categorized participant asthma based on the NIH guidelines; however, we recognize that there are limitations in that the small numbers should be viewed with caution. Still, the data highlight that many participants have a long-standing history of asthma, evolving from childhood, which may demonstrate under normal circumstances a mild asthma condition. The air pollution from traffic and construction dust this community has faced may exacerbate asthma symptoms and increase the severity and progression of their asthma condition.

The CHASS summarized resident concerns and stated how, "Specifically, residents are concerned that their 'already vulnerable community—home to many children, seniors, and many residents with fragile health—will be further threatened by the trucking of contaminated soil, dust, construction traffic, noise, and other disturbances.'" Survey responses echo the quote, with air quality and traffic pollution cited as particular environmental concerns (Fig. 6). More than 50% of those surveyed, regardless of whether or not they themselves had asthma, felt that poor air quality affected their health or the health of a family member or friend, which speaks to the perception of poor neighborhood air quality.

Air quality

A surprising finding was that, by U.S. EPA standards, neighborhood PM levels (Table 2) were not problematic. Yet, PM may be contributing to the community's high levels of asthma, and community voices have consistently expressed concern about poor air quality. *The failure to exceed U.S. EPA standards for PM, while residents continue to perceive poor air quality and health, highlights a mismatch between current methodologies and community perceptions that this study has the potential to inform.*

A first possibility is that PM standards should be more stringent, echoing recent studies that call for a closer examination of U.S. EPA[51] and WHO standards.[52] Even for individuals with exposures below the EPA threshold for $PM_{2.5}$, higher exposures correlated with higher rates of hospitalization for respiratory and cardiovascular diseases.[53] Growing evidence about the health effects of coarse PM (the fraction of PM_{10} larger than $PM_{2.5}$) puts particular attention on PM_{10} standards, which are in the United States three times higher than for the WHO (Table 2). Coarse PM can deposit in upper airways,[54] and

[49]Trivedi, Michelle, and Eve Denton. "Asthma in Children and Adults—What Are the Differences and What Can They Tell Us About Asthma?" *Frontiers in Pediatrics* 7 (2019): 256.

[50]Ibid.

[51]Maggie Makar, Joseph Antonelli, Qian Di, David Cutler, Joel Schwartz, and Francesca Dominici. "Estimating the Causal Effect of Low Levels of Fine Particulate Matter on Hospitalization." *Epidemiology* 28 (2017): 627–634.

[52]Alessandro Marcon, Giancarlo Pesce, Paolo Girardi, Pierpaolo Marchetti, Gianstefano Blengio, Simona de Zolt Sappadina, Salvatore Falcone, Guglielmo Frapporti, Francesca Predicatori, and Roberto de Marco. "Association between PM10 Concentrations and School Absences in Proximity of a Cement Plant in Northern Italy." *International Journal of Hygiene and Environmental Health* 217 (2014): 386–391.

[53]Makar. "Estimating the Causal Effect of Low Levels of Fine Particulate Matter on Hospitalization."

[54]Corinne A. Keet, Joshua P. Keller, and Roger D. Peng. "Long-Term Coarse Particulate Matter Exposure Is Associated with Asthma among Children in Medicaid." *American Journal of Respiratory and Critical Care Medicine* 197 (2018): 737–746.

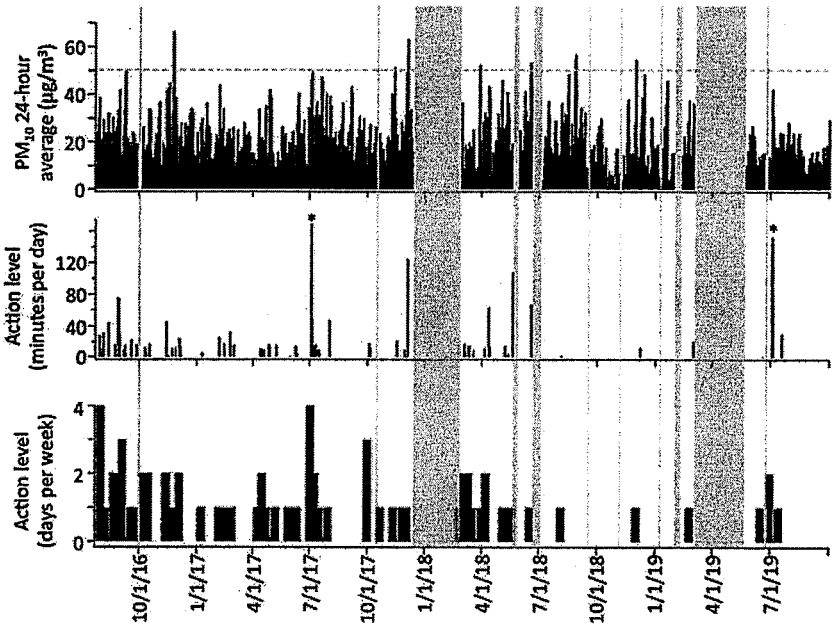


FIG. 7. PM_{10} at the neighborhood monitor. *Gray* marks periods when monitoring did not occur. The *top graph* shows 24-hour averages, and the *dotted line* marks the WHO level of concern, 50 µg/m^3. Averages did not exceed the U.S. EPA 24-hour standard of 150 µg/m^3. The *bottom two graphs* show the frequency at which PM_{10} reached the action level criterion, set at 15-minute rolling averages exceeding 100 µg/m^3. The *middle graph* indicates the number of minutes per day that the action level was exceeded. The *bottom graph* indicates the number of days per week that had action level events. The *asterisks* indicate the two times that data were collected on July 4, when fireworks are known to contribute to high PM. Sources for the WHO and U.S. EPA 24-hour averages: (https://www.who.int/airpollution/publications/aqg2005/en/, https://www.epa.gov/criteria-air-pollutants/naaqs-table). U.S. EPA, U.S. Environmental Protection Agency; WHO, World Health Organization.

at high-enough concentrations, can penetrate to the lungs.[55] Evidence of coarse PM health effects is growing.[56,57] In Taiwan, it was associated with increased hospitalizations for respiratory disease, even after controlling for other air pollutants.[58] A national-level study using Medicaid health data showed that long-term exposure to coarse PM is associated with increased asthma in children, with a stronger correlation for children younger than 11 years.[59] These outcomes may relate to chemical composition. Dust from concrete batch plants contains mostly calcium oxide and silica, with trace quantities of metals such as strontium, manganese, and chromium.[60] Exposure to silica can lead to irreversible lung disease, as documented in workers who break up concrete using drilling devices.[61] These studies indicate how further work to inform new PM_{10} standards should include consideration of chemical speciation.

[55]Morton Lippmann, Mitchell D. Cohen, and Lung-Chi Chen. "Health Effects of World Trade Center (WTC) Dust: An Unprecedented Disaster with Inadequate Risk Management." *Critical Reviews in Toxicology* 45 (2015): 492–530.

[56]Helen Powell, Jenna R. Krall, Yun Wang, Michelle L. Bell, and Roger D. Peng. "Ambient Coarse Particulate Matter and Hospital Admissions in the Medicare Cohort Air Pollution Study, 1999–2010." *Environmental Health Perspectives* 123 (2015): 1152–1158.

[57]Matthew J. Strickland. "Taking Another Look at Ambient Coarse Particles." *American Journal of Respiratory and Critical Care Medicine* 197 (2018): 697–698.

[58]Meng-Hsuan Cheng, Hui-Fen Chiu, and Chun-Yuh Yang. "Coarse Particulate Air Pollution Associated with Increased Risk of Hospital Admissions for Respiratory Diseases in a Tropical City, Kaohsiung, Taiwan." *International Journal of Environmental Research and Public Health* 12 (2015): 13053–13068.

[59]Keet *et al.* "Long-Term Coarse Particulate Matter Exposure Is Associated with Asthma among Children in Medicaid." (2018). *Op. cit.*

[60]California Air Resources Board. "PM Size and Chemical Speciation Profile for Concrete Batching—PM3431." October 22, 2013. <https://ww3.arb.ca.gov/ei/speciate/profilereference/concretebatching_pm3431.pdf>. (Last accessed on July 3, 2020).

[61]Alan S. Echt, Wayne T. Sanderson, Kenneth R. Mead, H. Amy Feng, Daniel R. Farwick, and Dawn Ramsey Farwick. "Effective Dust Control Systems on Concrete Dowel Drilling Machinery." *Journal of Occupational and Environmental Hygiene* 13 (2016): 718–724.

TABLE 3. COMPARISON OF ADULT ASTHMA PREVALENCE FOR BUZZARD POINT COMPARED WITH SELECTED WARDS IN THE DISTRICT OF COLUMBIA

	U.S.[a]	*Ward 3*[b]	*Ward 4*[b]	*Ward 5*[b]	*Ward 6*[b]	*Ward 7*[b]	*Ward 8*[b]	*Zip code 20024*[c]
Asthma prevalence	7.6%	9.7%	10.4%	14.0%	8.7%	23.7%	17.6%	12.7%

[a]Source: Centers for Disease Control and Prevention National Health Information Survey 2018. <https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2018_SHS_Table_A-2.pdf>. (Last accessed on September 14, 2020).
[b]Source: District of Columbia Department of Health. Overview of Asthma in the District of Columbia, May 2016. Community Health Administration, Asthma Control Program.
[c]Source: District of Columbia Department of Health, Office of Health Equity, "Buzzard Point Community Health and Safety Study, (CHASS). 2016. <https://doh.dc.gov/sites/default/files/dc/sites/doh/page_content/attachments/Buzzard%20Point%20Community%20Health%20and%20Safety%20Study28CHASS%29%20August%202016.pdf>

A second possibility is that 24-hour and annual averages fail to capture residents' lived experiences, and that a higher time resolution is needed. A key finding from this work is that 15-minute averages were able to describe the neighborhood's poor air quality in a way that annual averages did not. The analysis relied on the action-level criterion for dust mitigation from the Audi Field construction project, 15-minute rolling averages above 100 $\mu g/m^3$ PM_{10}. Counting these short-lived, high-PM events revealed that patterns were obscured in averages. In July 2016, such events occurred up to four days a week (Fig. 7). By the end of the monitoring period, however, the frequency decreased. This decrease was consistent with two changes. First, Superior Concrete underwent a new permitting process in late 2017, and the old facility ceased operation on July 20, 2018. Emissions from concrete batching plants are 27%–68% PM_{10}, depending on the activity and degree of dust control,[62] and only 6% $PM_{2.5}$.[63] The new facility was subject to stricter dust controls, and the decrease in emissions translated into lower PM_{10}. Second, construction of Audi Field terminated at the end of July 2018. Construction and demolition, along with roadways, are more likely to generate coarse PM (PM_{10} that is larger than $PM_{2.5}$) than fine particles.[64] Thus, an end to the Audi Field construction project also translated to lower PM_{10}.

Our findings suggest that alternative methods of data monitoring and analysis should address short-event, high-PM exposures. Such exposures may overwhelm the defensive mechanisms in the upper airway that normally protect the respiratory tract from coarse particles. High acute or chronic exposures to chemical irritants could increase PM retention in the lungs. The ability of the mucociliary defense system may be disrupted in these circumstances.[65] High, short-term coarse particle exposures have been associated with increased morbidity and mortality for respiratory illness.[66] Acute exposure to concentrated coarse particles in 2-hour intervals caused mild cardiopulmonary effects in young-adult volunteer test subjects.[67] Thus, short-term, high-intensity exposures, such as the ones at Buzzard Point during peak poor air quality periods, may exacerbate the effect of exposure to PM. One study has suggested that imposing 1-hour PM standards rather than reducing 24-hour standards could reduce exposure risk that comes from short-duration, high-intensity events.[68] Another study illustrated how pollution hotspots experience transient peaks in PM_{10} on the hourly scale, and pointed out the need for data characterizing such peaks, to support epidemiological studies that relate pollution to asthma and other diseases.[69] The 15-minute timescale used in the Audi Field action level criterion indicates that even shorter

[62]California Air Resources Board. "PM Size and Chemical Speciation Profile for Concrete Batching—PM3431."(2013). *Op. cit.*
[63]University of Texas at Austin School of Law Environmental Clinic. "Guide to Air Quality Permitting for Concrete Batch Plants." 2018. <https://law.utexas.edu/wp-content/uploads/sites/11/2019/01/2019-EC-ConcreteBatchPlantsGuide.pdf>. (Last accessed on July 6, 2020).
[64]Lippmann *et al.* "Health Effects of World Trade Center (WTC) Dust: An Unprecedented Disaster with Inadequate Risk Management." (2015). *Op. cit.*
[65]Ibid.
[66]Sara D. Adar, Paola A. Filigrana, Nicholas Clements, and Jennifer L. Peel. "Ambient Coarse Particulate Matter and Human Health: A Systematic Review and Meta-Analysis." *Current Environmental Health Reports* 1 (2014): 258–274.
[67]Donald W. Graff, Wayne E. Cascio, Ana Rappold, Haibo Zhou, Yuh-Chin T. Huang, and Robert B. Devlin. "Exposure to Concentrated Coarse Air Pollution Particles Causes Mild Cardiopulmonary Effects in Healthy Young Adults." *Environmental Health Perspectives* 117 (2009): 1089–1094.
[68]Robert A. Michaels and Michael T. Kleinman. "Incidence and Apparent Health Significance of Brief Airborne Particle Excursions." *Aerosol Science and Technology* 32 (2000): 93–105.
[69]Teresa Moreno, Xavier Querol, Andres Alastuey, Mar Viana, and W. Gibbons. "Profiling Transient Daytime Peaks in Urban Air Pollutants: City Centre Traffic Hotspot versus Urban Background Concentrations." *Journal of Environmental Monitoring* 11 (2009): 1535.

timescales may be necessary, underscoring the importance of studies that characterize short-duration pollution events.[70,71,72,73,74]

CONCLUSION

Community-based research informs both health and air quality research, in this case by providing information missed by conventional monitoring and data collection. Community health surveys revealed neighborhood-level discrepancies that had been obscured at a larger zip code level. An important conclusion therefore is that asthma may be underdiagnosed in the Buzzard Point neighborhood, and relying on diagnoses may lead to underestimating its prevalence in communities such as Buzzard Point. This important finding underscores the value of health data at a census-tract level, especially when there are socioeconomic disparities within the larger zip code level.

Neighborhood air quality data illustrated how time-resolved measurements capture spikes in PM that are obscured in averages. Further research to better establish the links between asthma and air pollution will require data collection on a high resolution in terms of both location and time, to capture census-tract-level health disparities and short-duration, high-pollution events that may affect the community health.

ACKNOWLEDGMENT

The TSI DustTrak is on loan from Smith College (MA, USA).

[70]Gurumurthy Ramachandran, John L. Adgate, Nicholas Hill, Ken Sexton, Gregory C. Pratt, and Donald Bock. "Comparison of Short-Term Variations (15-Minute Averages) in Outdoor and Indoor PM $_{2.5}$ Concentrations." *Journal of the Air & Waste Management Association* 50 (2000): 1157–1166.

[71]Meng Qi, Wei Du, Xi Zhu, Wei Wang, Cengxi Lu, Yuanchen Chen, Guofeng Shen, Hefa Cheng, Eddy Y. Zeng, and Shu Tao. "Fluctuation in Time-Resolved PM2.5 from Rural Households with Solid Fuel-Associated Internal Emission Sources." *Environmental Pollution* 244 (2019): 304–313.

[72]Evi Dons, Michelle Laeremans, Juan Pablo Orjuela, Ione Avila-Palencia, Audrey de Nazelle, Mark Nieuwenhuijsen, Martine Van Poppel, *et al.* "Transport Most Likely to Cause Air Pollution Peak Exposures in Everyday Life: Evidence from over 2000 Days of Personal Monitoring." *Atmospheric Environment* 213 (2019): 424–432.

[73]Penelope J.E. Quintana, J.R. Valenzia, R.J. Delfino, and L.-J.S. Liu. "Monitoring of 1-Min Personal Particulate Matter Exposures in Relation to Voice-Recorded Time–Activity Data." *Environmental Research* 87 (2001): 199–213.

[74]Pasquale Avino, Francesco Lopez, and Maurizio Manigrasso. "Regional Deposition of Submicrometer Aerosol in the Human Respiratory System Determined at 1-s Time Resolution of Particle Size Distribution Measurements." *Aerosol and Air Quality Research* 13 (2013): 1702–1711.

AUTHOR DISCLOSURE STATEMENT

No competing financial interests exist.

FUNDING INFORMATION

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SUPPLEMENTARY MATERIAL

Supplementary Data
Supplementary Figure S1
Supplementary Figure S2
Supplementary Figure S3
Supplementary Table S1
Supplementary Table S2
Supplementary Table S3
Supplementary Table S4
Supplementary Table S5
Supplementary Table S6
Supplementary Table S7

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Tab 7

Tab 7

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1910 ROUTE 9 CLIFTON PARK LLC

Concrete Batch Plant

Towns of Clifton Park and Halfmoon, Saratoga County, New York

Noise Impact Assessment

September 25, 2025

Prepared for: Town of Clifton Park

Submitted by: Mr. Luke Clemente
1910 Route 9 Clifton Park, LLC

Prepared by: Brian Milliman, Owner
Strategic Mining Solutions LLC
brian@miningstrategy.com

TABLE OF CONTENTS

APPENDIX

- Noise Attenuation Calculation Sheets
- Site Plan Map

1.0 INTRODUCTION

This report assesses potential noise impacts associated with the proposed 1910 Route 9 Clifton Park, LLC "the Applicant" concrete batch plant. The Noise Impact Assessment was prepared in accordance with the guidance established in the NYSDEC Program Policy: Assessing and Mitigating Impacts, issued on October 6, 2000, and revised on February 2, 2001.

The proposed concrete batch plant is located approximately 500 feet west of US Route 9 and 250 feet north of the intersection of US Route 9 and Roberts Lane in the Towns of Clifton Park and Halfmoon, Saratoga County. Current access to the property is via an existing driveway off US Route 9.

Common Sound Levels	
Source	Sound Level in dB(A)
Carrier Jet Takeoff @ 50 feet	140
Loud Rock Band	130
Car Horn @ 3 feet	120
Chainsaw	110
Lawn Mower @ 3 feet	100
Heavy Truck @ 3 feet	90
Busy Urban Street	80
Automobile @ 50 feet	70
Conversation @ 3 feet	60
Quiet Residential Area	50
Library	40
Soft Whisper	30
Slight Rustling of Leaves	20
Broadcast Studio	10
Threshold of Hearing	0

Figure 1. Common Sound Levels

2.2 FREQUENCY

Frequency describes the pitch of sound and is measured in cycles per second, or hertz (Hz). Frequency is the rate at which a sound source vibrates, or makes the air vibrate. Most sounds are comprised of many different frequencies, each with varying intensity.

The range of human hearing is limited to those frequencies between 20 to 20,000 Hz, although it is fairly common for people who are over 25 years of age to not be able to hear frequencies above 15,000 Hz. Sound with frequencies below 20 Hz is referred to as

3.0 PROJECT SOUND LEVELS

3.1 RECEPTORS

The proposed concrete batch plant property is zoned light industrial and all of the neighboring uses consist of a mix of industrial and commercial development.

The two closest businesses and the closest resident were chosen for assessment; they are identified on the Site Plan Map included in the Appendix as receptor locations R1, R2 and R3. These locations represent the closest receptor locations; concrete batch plant sound levels at other, further away locations will be lower than what is calculated at these receptors.

3.2 AMBIENT SOUND LEVEL

A baseline study of existing ambient sound levels was conducted on September18th, 2025, in accordance with the guidelines outlined in the New York State Department of Environmental Conservation's Program Policy: Assessing and Mitigating Noise Impacts and ANSI S12.18: *Procedures for Measurement of Sound Pressure Level.*

The ambient monitoring location was chosen to acquire sound levels representative of ambient levels at the nearby receptors. The ambient sound level in the vicinity of the project and receptor properties is dominated by traffic noise from U.S. Route 9, which experiences annual average daily traffic (AADT) levels of over 16,000 vehicles/day[7].

The enclosed Site Plan Map shows the ambient sound level monitoring location, and the data is summarized in the following table.

Ambient Monitoring Location	Description	Ambient Sound Level (L_{eq})
A	Concrete Batch Plant Property	67.8 dBA

Table 1. Ambient Sound Level

[7] NYSDOT 2024 Estimated AADT

3.3 Concrete Plant Sound Levels

Octave band equipment sound level readings were obtained at a concrete batch plant operating in Hudson, NY, which is similar to the proposed one. The measurements were taken in accordance with the guidelines outlined in the New York State Department of Environmental Conservation's Program Policy: Assessing and Mitigating Noise Impacts and ANSI S12.18: *Procedures for Measurement of Sound Pressure Level*.

A series of discrete, directional octave band sound level readings were collected at four different locations around the plant while it was fully operational. It is noted that the equipment operating around the plant, and not the plant itself, is the primary source of noise at a concrete batch plant. The following are the primary sources of noise at a batch plant listed in order of intensity:

1. The cement blower used to transfer cement from the bulk cement delivery trucks to the storage silos (primary source of noise).
2. The concrete mixer trucks (secondary source of noise).
3. Loading of the aggregate feed bins (tertiary source of noise).

The Hudson, NY plant was in full operation while the readings were collected: a loader was actively feeding aggregate into the plant, a cement truck was transferring cement into a silo and concrete mixer trucks were being loaded. Only sound levels from the loudest monitoring location were used in this assessment to be conservative. The following table summarizes the Concrete Plant sound levels used in this assessment:

Concrete Plant Equipment	Sound Level Normalized To 50'
Concrete Plant, Cement Blower, Loader and Mixer Trucks	89.6 dBA

Table 2. Concrete Plant Sound Levels

3.4 Concrete Plant Noise Scenario

The proposed operating scenario of a fully operational concrete plant operating with the loudest side of the plant facing each receptor was modeled using the standard formulas described in the previous section.

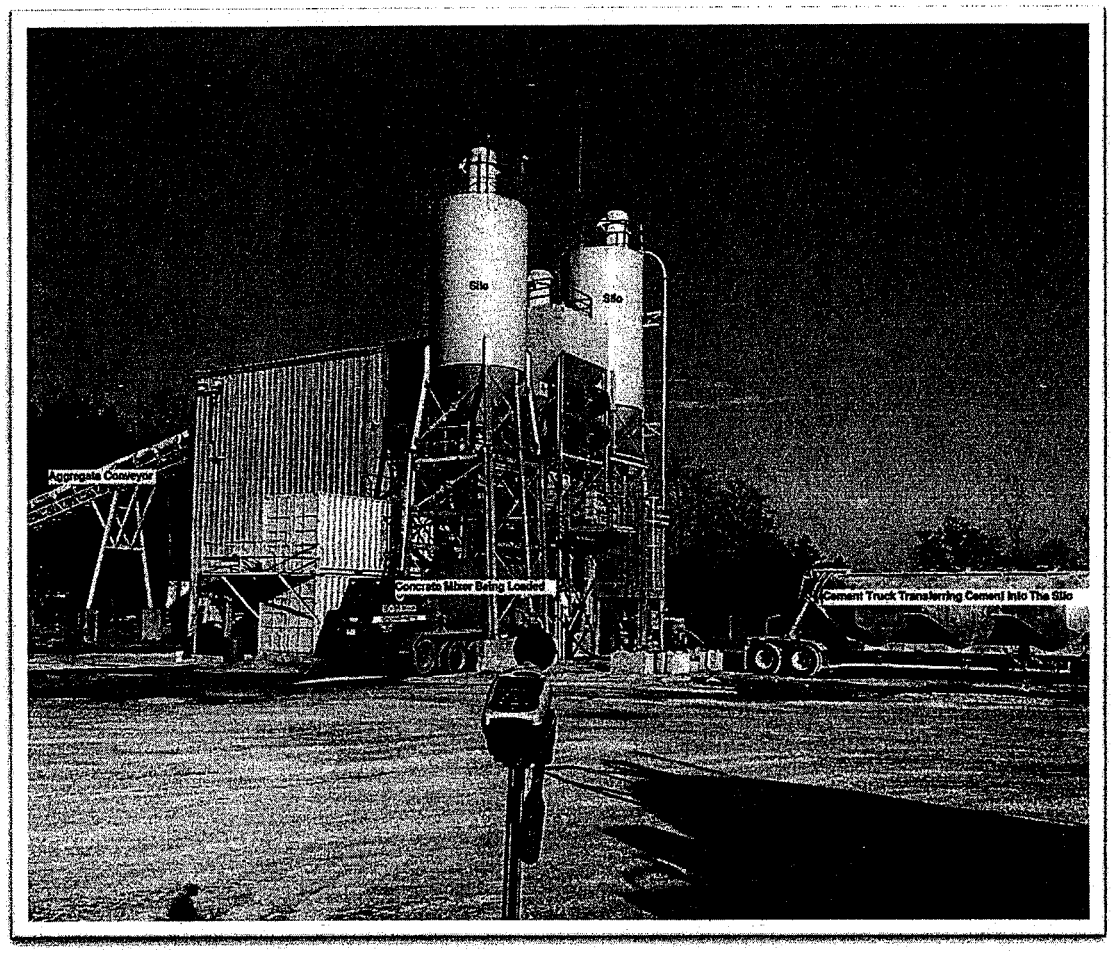


Figure 7. Hudson Concrete Batch Plant

4.2 Noise Impact Assessment

The noise impact assessment was conducted using a worst-case approach using the loudest measured concrete batch plant sound levels. Actual sound levels will be much less than modeled because:

- Concrete batch plants typically operate intermittently based on local construction demand, which varies seasonally.
- The loudest side of the plant (where the cement blowers will be operating) will be facing east, toward the highway.

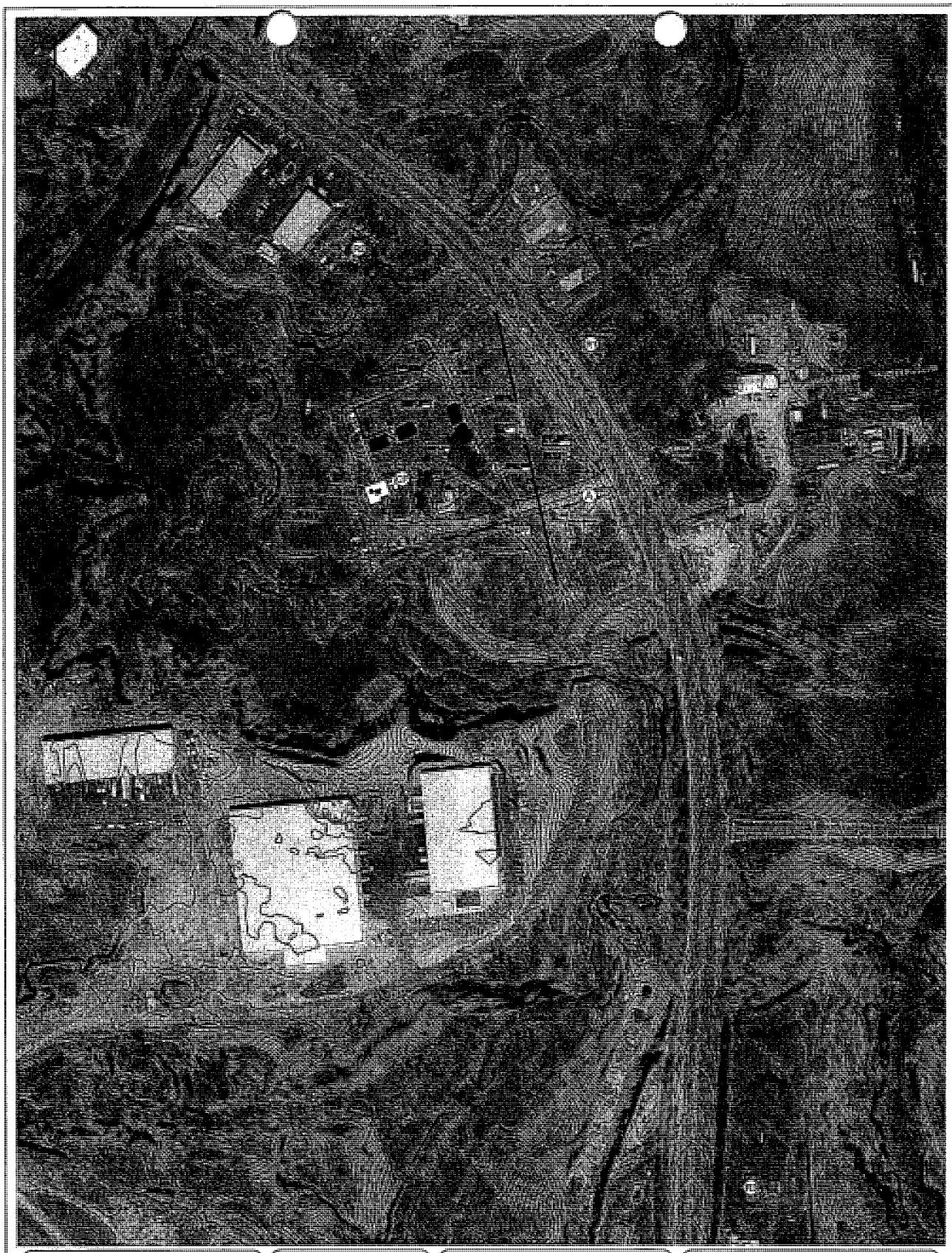
The following table summarizes the assessment for Receptors R1, R2 and R3.

		Receptor Location		
Scenario		R1	R2	R3
(CP) Concrete Batch Plant, Cement Blower, Loader and Mixer Trucks Getting Loaded	Concrete Batch Plant Sound Level at 50'	89.3 dB(A)	89.3 dB(A)	89.3 dB(A)
	Receptor Distance	567 feet	568 feet	1,907 feet
	Distance Attenuation	21.1 dB	21.1 dB	31.6 dB
	Attenuation Due to Barriers and Vegetation	0 dB[9]	2.7 dB[9]	5.0 dB[9]
	Atmospheric Absorption (Minimum)[10]	0.9 dB min.[9]	0.9 dB min.[9]	2.1 dB min.[9]
	Ground Attenuation (Not Used)	0 dB	0 dB	0 dB
Calculated Sound Level at Receptor		67.3 dB(A)	64.6 dB(A)	50.6 dB(A)
Ambient Sound Level at Receptor		67.8 dB(A)	67.8 dB(A)	67.8 dB(A)
Difference From Ambient		-0.5 dBA	-3.2 dBA	-17.2 dBA

Table 3. Noise Impact Assessment

[9] Varies by frequency.

[10] See section 2.4.3 for methodology.



SITE PLAN MAP
FOR NOISE IMPACT ASSESSMENT
1910 Route 9 Clifton Park LLC
CONCRETE BATCH PLANT
Towns of Clifton Park and Halfmoon, Saratoga County, NY

Prepared for:

Prepared by:

REVISIONS

Date	Description	By

LEGEND

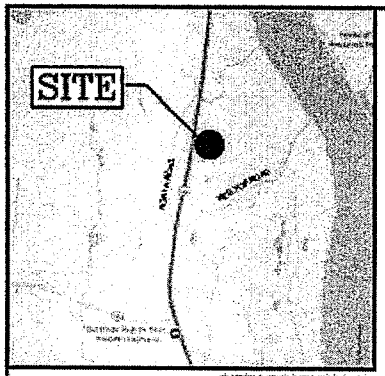
- Property Line
- Centerline
- Treeline
- SP — Concrete Batch Plant Noise Source
- A — Ambient Monitoring Location
- R1 — Receptor Location

SCALE

NOTES

Tab 8

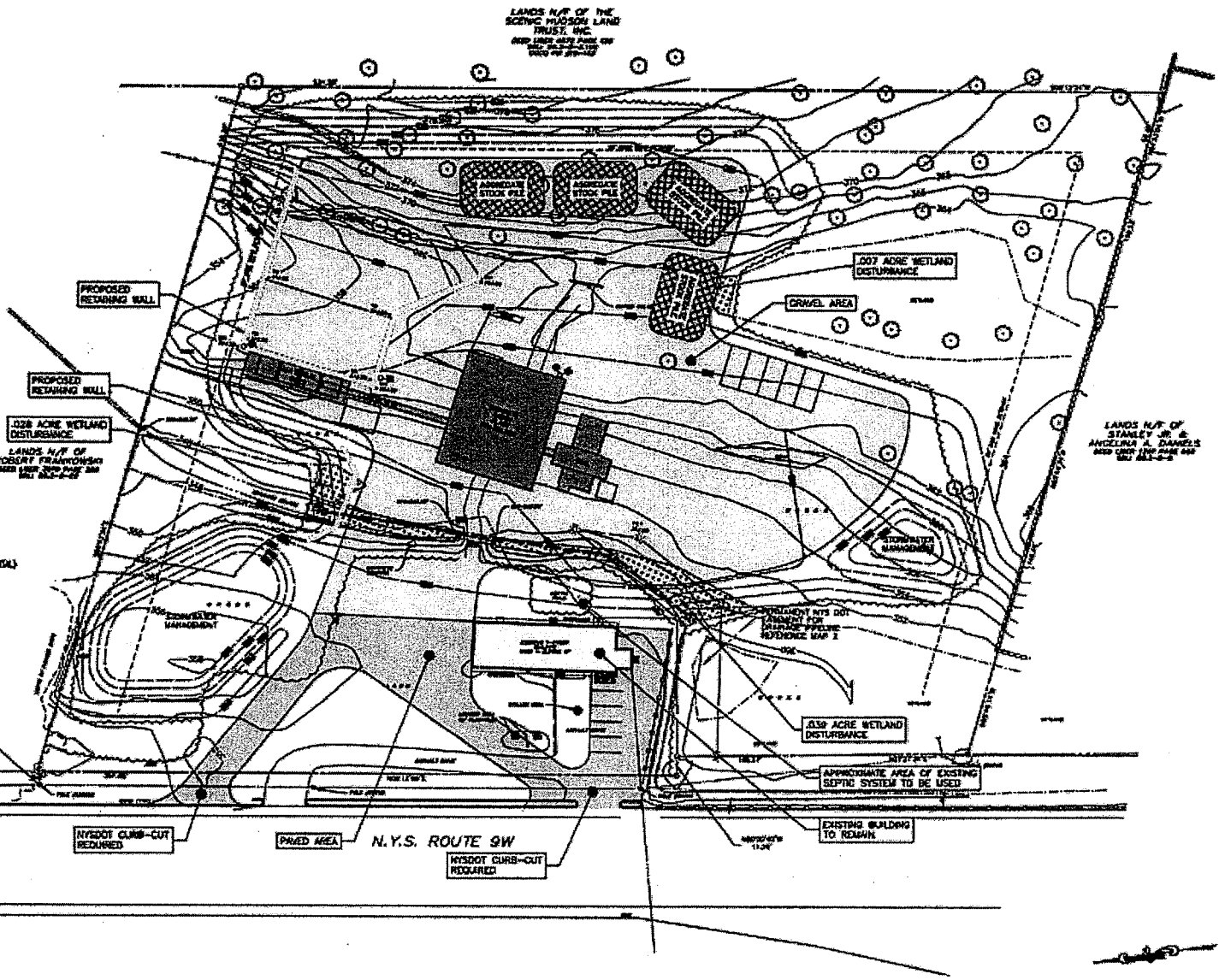
Tab 8



SITE LOCATION MAP
SCALE: 1" = 2,000'

SITE STATISTICS

EXISTING ZONING	LI LIGHT INDUSTRIAL		
PARCEL AREA	4.826± ACRES		
PROPOSED LAND USE	BATCH CONCRETE PLANT		
BUILDING AREA			
EXISTING	2,300± SF		
PROPOSED	4,200± SF		
TOTAL	6,400± SF		
PROPOSED LOT COVERAGE	0.6% (MAX 35% REQUIRED)		
BUILDING HEIGHT	TOP OF SILO 58 FEET TOP OF BUILDING 45 FEET		
MINIMUM BUILDING SETBACKS	REQUIRED	EXISTING	PROPOSED
FRONT YARD	N/A	58 FT	168 FT
REAR YARD	35 FT	310 FT	152 FT
SIDE YARD	35 FT (70' TOTAL)	186 FT	47 FT (291' TOTAL)
WATER	EXISTING DRILLED WELL		
SEWER	EXISTING ON SITE SEPTIC		
STORMWATER	ON-SITE		
PROPOSED WETLAND IMPACTS	0.074± ACRES		



LIGHT INDUSTRIAL DEVELOPMENT

BATCH CONCRETE PLANT

OWNER: 3260 ROUTE 9W HIGHLAND NY LLC

LOCATED AT 3259 ROUTE 9W
TOWN OF LLOYD
COUNTY OF ULSTER, NY

TAX MAP ID 80.3-2-5

JUNE 11, 2026

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP

SCALE: 1"=30'

SHEET TITLE:
CONCEPTUAL SITE AND GRADING PLAN

SHEET:

Tab 9

Task #	Task Description	Responsible Agency									Schedule		
	***Other Agencies:** 1. Lloyd Beautification Committee 2. Lloyd Water Board 3. Lloyd Economic Development Committee 4. Lloyd Zoning Enforcement Officer 5. Ulster County Planning Department 6. NYS DOT 7. NYS DEC **Legend:** ● Final Action ⊙ Development/Drafting ○ Review Role	Town Board	Planning Board	Zoning Board of Appeals	Farmland Protection Committee	Environmental Conservation Council	Recreation Commission	Transportation Safety Committee	Town Planner/Town Engineer	Other Agency*	Immediate	Near Future	Long Term
143.	Encourage alternatives to typical modern highway oriented commercial development.		●										
144.	Extend water and sewer mains north on Rt. 9W to permit light industry to locate here.	●								●2			
145.	Adopt special use permit provisions and design standards for light industry.	●	⊙						○				
146.	Actively market properties in the LI District to attract viable light industries.	●								●3			
147.	Adopt a GEIS for commercial and light industrial development to streamline the review process.	●	⊙	○					○				
148.	Set a size limit threshold of 50,000 sq. ft. in the GEIS for new retail development.	●	⊙	○					○				
149.	Encourage use of geothermal heating and cooling in the GEIS	●	⊙	○					○				
150.	Amend Zoning to include Land Use Mediation.	●	⊙	○					○				
151.	Amend Zoning to a two-tier structure for Home Occupations.	●	⊙	○					○				
152.	Include agri-business and tourism in all future economic development plans for the Town.	●											
153.	Promote farmers markets and p-y-o operations.	●			●								

Tab 10

Tab 10

Local Law Filing

NEW YORK STATE DEPARTMENT OF STATE
162 WASHINGTON AVENUE, ALBANY, NY 12231

(Use this form to file a local law with the Secretary of State.)

Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underlining to indicate new matter.

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED
JUL 01 2013
MISCELLANEOUS
& STATE RECORDS

~~County~~
~~City~~
Town **of Lloyd**
~~Village~~

Local Law No. 4 of the Year 2013

A local law amending Chapter 100 entitled "ZONING" of the Code of the Town of Lloyd to create the Walkway-Gateway Zoning District and make other related changes.

Be it enacted by the Town Board of the

~~County~~
~~City~~
Town **of Lloyd as follows:**
~~Village~~

PLEASE SEE ATTACHED.

(Complete the certification in the paragraph that applies to the filing of this local law and strike out that which is not applicable).

1. (Final adoption by local legislative body only.)

I hereby certify that the local law annexed hereto, designated as local law No. 4 of 2013 of the Town of Lloyd was duly passed by the Town Board on June 19, 2013, in accordance with the applicable provisions of law.

~~**2. (Passage by local legislative body with approval, no disapproval or repassage after disapproval by the Elective Chief Executive Officer*.)**~~

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 200__ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____, 200__, and was (approved)(not approved) (repassed after disapproval) by the _____ and was deemed duly adopted on_____ 200___, in accordance with the applicable provisions of law.

3. (Final adoption by referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 200__ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____, 200__, and was (approved)(not approved) (repassed after disapproval) by the _____ on _____ 200__. Such local law was submitted to the people by reason of a (mandatory)(permissive)(referendum, and received the affirmative vote of a majority of the qualified electors voting thereon at the (general)(special)(annual) election held on _____ 200____, in accordance with the applicable provisions of law.

4. (Subject to permissive referendum and final adoption because no valid petition was filed requesting referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 200__ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____, 200__, and was (approved)(not approved) (repassed after disapproval) by the _____ on _____ 200____. Such local law was subject to permissive referendum and no valid petition requesting such referendum was filed as of _____ 200___, in accordance with the applicable provisions of law.

_____

***Elective Chief Executive Officer means or includes the chief executive officer of a county elected on a county-wide basis or, if there be none, the chairperson of the county legislative body, the mayor of a city or village, or the supervisor of a town where such officer is vested with the power to approve or veto local laws or ordinances.**

~~5. (City local law concerning Charter revision proposed by petition.)~~

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 200___ of the City of _____ having been submitted to referendum pursuant to the provisions of section (36)(37) of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of such city voting thereon at the (special)(general) election held on _____ 200___, became operative.

6. (County local law concerning adoption of Charter.)

I hereby certify that the local law annexed hereto, designated as local law No._____ of 200___ of the County of _____ State of New York, having been submitted to the electors at the General Election of November _____ 200__, pursuant to subdivisions 5 and 7 of section 33 of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of the cities of said county as a unit and a majority of the qualified electors of the towns of said county considered as a unit voting at said general election, became operative.

(If any other authorized form of final adoption has been followed, please provide an appropriate certification.)

I further certify that I have compared the preceding local law with the original on file in this office and that the same is a correct transcript therefrom and of the whole of such original local law, and was finally adopted in the manner indicated in paragraph one, above.

Rosaria Peplow
Town Clerk

(Seal)

Date: June 25, 2013

(Certification to be executed by County Attorney, Corporate Counsel, Town Attorney, Village Attorney or other authorized attorney of locality).

STATE OF NEW YORK
COUNTY OF ULSTER

I, the undersigned, hereby certify that the foregoing local law contains the correct text and that all proper proceedings have been had or taken by the enactment of the local law annexed hereto.

Sean Murphy
Di Stasi Moriello & Murphy Law PLLC
Town Attorney

Town of Lloyd

Date: June 25, 2013

Town of Lloyd

Local Law No. 4 of the year 2013

A local law amending Chapter 100 entitled ZONING of the Code of the Town of Lloyd
To Create the Walkway-Gateway Zoning District and Make Other Related Changes

Be it enacted by the Town Board of the Town of Lloyd as follows:

SECTION 1. LEGISLATIVE INTENT

This Local Law amends Chapter 100 of the Code to create the Walkway-Gateway Zoning District and makes other related changes necessitated by the creation of this District. The Walkway-Gateway District shall be comprised of two subdistricts: the Gateway Mixed-Use Subdistrict and the Gateway Commerce Subdistrict. The amendments are designed to protect the health, safety and welfare of Town residents and to bring the Town's Zoning Law into conformance with the recommendations of the Town's *Comprehensive Plan*.

SECTION 2. SEVERABILITY

The invalidity of any word, section, clause, paragraph, sentence, part or provision of this Local Law shall not affect the validity of any other part of this Local Law, which can be given effect without such part or parts.

SECTION 3. AMENDMENTS TO ARTICLE II OF THE ZONING LAW ENTITLED "DEFINITIONS"

§ 3.1. Section 100-8 of the Code is hereby amended by deleting the definition of "Apartment, Upper Floor" and replacing it with the following new definition:

Apartment, Upper Floor – A dwelling unit located on an upper floor of a shopfront building, as described in Section 100-26G, and having a minimum gross floor area of 450 square feet.

§ 3.16. Section 100-8 of the Code is hereby amended by the addition of the following new definition:

Road, Secondary – Any road in the W-G District, either existing or proposed, except for Route 9W.

§ 3.17. Section 100-8 of the Code is hereby amended by the addition of the following new definition:

Tree Lawn – The off-street area within the public right-of-way immediately adjacent to the street curb that accommodates street trees and which serves to protect pedestrians on the sidewalk from vehicular traffic.

SECTION 4. AMENDMENTS TO ARTICLE III OF THE ZONING LAW ENTITLED "ESTABLISHMENT OF DISTRICTS"

§ 4.1. Section 100-9 of the Code is hereby amended by the addition of the following District to the list of District Classifications in subsection A:

District Label	**Zoning District**
WG	Walkway-Gateway District**

§ 4.2. Section 100-9 of the Code is hereby amended by the addition of the following Note to appear as the second note under the heading "Note" in subsection A:

Note:

** The Walkway-Gateway District is divided into two (2) subdistricts, the Gateway Mixed-Use Subdistrict and the Gateway Commerce Subdistrict.

SECTION 5. AMENDMENTS TO ARTICLE IV OF THE ZONING LAW ENTITLED "DISTRICT REGULATIONS"

§ 5.1. Section 100-12 of the Code is hereby amended by replacing 100 Attachment 1 Town of Lloyd Use Table, with the revised Town of Lloyd Use Table, a copy of which is attached hereto as Attachment A.

§ 5.2. Section 100-12 of the Code is hereby amended by inserting the following new § 100-12C(3) into the Code to read as follows:

C(3) In the W-G District, the display or storage of goods, wares, merchandise or supplies outside of any building or structure shall be prohibited with the exception of a retail business, which may be permitted to have a display of store merchandise on its sidewalk frontage or in a front courtyard during business hours as long as such display does not interfere with pedestrian circulation.

§ 5.3. Section 100-13 of the Code is hereby amended by adding the following row to the bottom of 100 Attachment 2 Town of Lloyd Dimensional Table:

W-G	See Chapter 100-26 of this chapter.

SECTION 6. AMENDMENTS TO ARTICLE V OF THE ZONING LAW ENTITLED "OVERLAY AND OTHER DISTRICT REGULATIONS"

§ 6.1. The following new § 100-26 is inserted into the Code to read as follows:

§ 100-26. Walkway-Gateway District

A. Purpose. The purpose of the Walkway-Gateway (W-G) District is to change the character of an area that has developed as an auto-oriented commercial strip so that it becomes a walkable mixed-use neighborhood where people will want to live, shop and invest. In addition, this District is intended to attract visitors to the Walkway over the Hudson State Historic Park to spend time in conjunction with their visit. Specifically, the intent of the District is to:

(1) Enhance the quality of the built environment and promote site layout and architectural design compatible with the historic character of the community and the national prominence of the Walkway over the Hudson State Historic Park to which this neighborhood serves as a gateway.

(2) Provide compatible and harmonious economic development between the Hudson Valley Rail Trail and the Hamlet of Highland to encourage people to walk into the Hamlet.

(3) Provide for the safety and comfort of pedestrians, cyclists, transit users and motorists alike.

(4) Implement the goals and recommendations of the Town's Comprehensive Plan and the vision of the Hudson River Valley Greenway Compact.

B. Subdistricts:

(1) The W-G District consists of two subdistricts as shown on the Zoning Map: the Gateway Mixed-Use (GM) Subdistrict and the Gateway Commerce (GC) Subdistrict.

(a) The GM Subdistrict is intended to encourage compact, walkable, mixed-used development that emulates the neighborhood character of the Hamlet of Highland, within walking distance of the Hamlet and the Walkway/Rail Trail. This character includes:

- Ample sidewalks and street trees, with building frontages whose windows, doors and awnings are oriented toward the sidewalk, forming a consistent street wall that is hospitable and inviting to pedestrians.

- Buildings located close to the sidewalk and to each other with a diversity of uses.
- First floor uses in shopfront buildings that generate and serve pedestrian traffic, such as retail, personal services and restaurants.
- Streets designed to integrate pedestrians, bicycles and cars.
- Pedestrian-scale neighborhood amenities such as pocket parks, lighting, benches, and planters.
- Figure 1: GM Subdistrict Illustrative Sketch Plan shows an artist's rendering of the desired neighborhood character. The Sketch Plan can be found on the following page. It is illustrative of a desired result but has no regulatory effect.

(b) The GC Subdistrict is intended to serve as a scenic gateway to Highland with attractive architecture and generous landscaping that creates an appealing first impression of Highland for visitors who approach the Town from the Walkway over the Hudson and the Mid-Hudson Bridge. Here, the emphasis is on commercial uses appropriate for visitors and residents.

C. Applicability.

(1) The provisions of this section shall apply to the W-G District and shall be in addition to other requirements of the Town Code. In the event of any conflict, the provisions of this section shall control.

(2) This section uses the terms "shall" when a standard is required and "should" when the standard is to be applied unless the Planning Board finds strong justification for an alternative solution in an unusual and specific circumstance. The term "encouraged" means preferred but not required.

(3) In order to encourage mixed uses, more than one permitted use shall be allowed on any lot or parcel, subject to all approval criteria contained herein.

(4) To promote optimum use of the parcel in the future, applicants may be required to prepare a conceptual master plan for their entire parcel whenever an application to subdivide or develop a portion of a larger parcel is submitted. The development of a master plan is intended to ensure that partial development or subdivision of a parcel will not preclude future development consistent with the purposes of the W-G District. Master plans may be developed at various levels of detail. Generally, the more specific the master plan, the less review will be required as the future permitted uses are built. In reviewing and approving a conceptual master plan, the Planning Board shall indicate the extent to which the plan will be binding upon future decisions with respect to other portions of the parcel.

D. Permitted Uses.

(1) Uses permitted in each of the subdistricts are identified in § 100-12.

(2) In shopfront buildings that front on Route 9W in the GM Subdistrict, the first floor facing Route 9W shall be limited to retail and service businesses, restaurants, lodging, artisanal use, entertainment, cultural center, library and museum. The first floor facing away from Route 9W and upper stories may be occupied by any of the uses permitted in the GM Subdistrict. First floor apartments facing away from Route 9W are subject to issuance of a special use permit.

(3) Residential uses shall not have first floor frontage on Route 9W.

E. Prohibited Uses. In the W-G District, drive-in or drive-through facilities, self-storage units, banks, motor vehicle sales, rentals and repair, gas stations, car washes, and other uses not explicitly listed in § 100-12 are prohibited, except as provided in Section 100-38B.

F. Dimensional Standards. In the W-G District, all new construction or any enlargement of an existing structure greater than ten (10) percent of the structure's gross floor area shall be subject to the following minimum and maximum dimensional standards:

velopments, extraordinary hardship would result from strict compliance with the site design standards in §§ 100-26H through J, it may waive or modify the requirements of those subsections to mitigate the hardship so that substantial justice may be done and the public interest secured, provided that no such waiver shall be granted which will have the effect of nullifying the intent and purpose of the W-G District.

(2) The Planning Board may, in granting waivers or modifications to these site design standards, incorporate such reasonable conditions as will, in its judgment, substantially secure the objectives of the requirements so waived.

(3) No waiver or modification shall be deemed approved or granted by implication. Unless a specific waiver is requested by the applicant in writing and granted by the Planning Board, all proposed projects shall comply with the provisions of this section. All waivers and modifications shall be expressly set forth in the minutes of the Planning Board.

(4) Waivers shall be considered unique and shall not set precedent for others.

SECTION 7. AMENDMENTS TO ARTICLE VI OF THE ZONING LAW ENTITLED "SUPPLEMENTARY REGULATIONS"

§ 7.1. The following new § 100-38 is inserted into the Code to read as follows:

§ 100-38. Supplementary Standards for the W-G District.

A. Farmers' Market. A farmers' market, as defined in § 100-8 of this chapter, shall be permitted in the GM Subdistrict of the W-G District, provided that:

(1) If the farmers' market involves the construction or use of permanent structures or other improvements, including parking surfaces and signage, all applicable standards for the GM Subdistrict shall be met.

(2) If the farmers' market involves the use of temporary structures, such as tents or similar shelters, such structures may be erected only during periods of farmers' market activity and may be in place not more than 24 hours prior to or following such sales activity. The display of signage shall be restricted by the same time requirements and limited to on-site locations.

(3) The farmers' market shall meet all applicable Ulster County Health Department standards.

(4) A farmers' market may be a principal or accessory use.

B. Restaurant, drive-through. A drive-through restaurant shall be permitted in the GC Subdistrict of the W-G District and in the W-G: GM District with a Special Use Permit, provided that:

(1) The drive through is not accessed directly from Route 9W;

(2) Pedestrian circulation is not impeded by drive-through traffic.

C. Light Industry in the W-G: GC District. Light industry shall be permitted in the GC Subdistrict of the W-G District, provided that:

(1) All Light Industrial Use processes shall be performed within an Enclosed Structure.

(2) All storage of raw materials used in any Light Industrial Use and any waste generated from any Light Industrial Use shall be stored in an enclosed structure or a container made from impervious materials which prevents exposure of its contents to the ambient elements.

(3) Light Industrial uses deemed to be high impact uses are expressly prohibited. High Impact uses include Industrial or manufacturing processes engaged in the production of any products classified under the following North American Industry Classification (NAIC) 2007 system code numbers: Veneer, Plywood & Engineered Wood Product Manufacturing (3212), except for Truss Manufacturing (321214), which shall not be included as a High Impact Use; Pulp, Paper and Paperboard Manufacturing (3221); Petroleum & Coal Manufacturing (3241); Basic Chemical Manufacturing (3251); Pesticide, Fertilizer & Other Agricultural Chemical Manufacturing (3253); Other Chemical Products & Preparation Manufacturing (3259); Clay Product & Refractory Manufacturing (3271); Glass & Glass Product Manufacturing (3272); Cement & Concrete Manufacturing (3273); Lime & Gypsum Manufacturing (3274); Other Nonmetallic Mineral Product Manufacturing (3279); Iron Steel Mills & Ferroalloy Manufacturing (3311); Steel Product Manufacturing from Purchased Steel (3312); Alumina & Aluminum Production & Processing (3313); Nonferrous Metal (Not Alum) Production & Processing (3314); Foundries (3315); Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing (3252); Rubber Products Manufacturing (3262); and Leather and Allied Product Manufacturing (3161).

(4) Notwithstanding subsection (3) above, a manufacturing or industrial process classified under NAIC system code numbers Pottery, Ceramics, and Plumbing Fixture Manufacturing (32711); Vitreous China, Fine Earthenware, and Other Pottery Product Manufacturing (327112); Other Pressed and Blown Glass and Glassware Manufacturing (327212); Glass Product Manufacturing Made of Purchase Glass (327215); and Leather and Hide Tanning and Finishing (316110) shall not be considered a High-Impact Use if it:

(a) Is not likely to have a significant negative impact upon the environment.

(b) Is not likely to cause or significantly contribute to an increase in mortality or serious irreversible, or incapacitating reversible illness.

(c) Is not likely to pose a substantial present or potential hazard to human health due to the nature of its operation, materials used and/or wastes generated.

(5) Any use requiring a permit from a state or federal governmental agency, which permit would allow for the discharge, storage, transport, disposal, or release of Contamination, shall be evidence of a High-Impact Use, as determined by the type and volume of Contamination.

(6) High-Impact Uses also include any uses which have associated therewith any detrimental or obnoxious noise, vibration, smoke, odors, dust, heavy truck traffic, toxic or hazardous raw materials or Hazardous Wastes, and/or Contamination.

D. Recreational business in the W-G: GC District. Recreational business, other than golf courses, driving ranges, go-kart tracks and similar outdoor recreational facilities that consume large amounts of land, shall be permitted in the GC Subdistrict of the W-G District.

SECTION 8. AMENDMENTS TO THE TOWN OF LLOYD ZONING MAP

The Zoning District Map prepared by _____ dated _____, attached hereto as Attachment B, is hereby adopted and declared to be the Zoning District Map of the Town of Lloyd, and an appurtenant part of the Zoning Code of the Town.

SECTION 9. EFFECTIVE DATE

This local law shall take effect immediately after it is filed with the Secretary of State as provided in section twenty-seven of the Municipal Home Rule Law.

ZONING

100 Attachment 1

Town of Lloyd

Use Table

KEY:

P = Permitted principal use
SP = Special permitted use
* = Site plan approval required
– = Prohibited use

Use	District															Reference
	A	R-2	R-1	R-½	R-¼	TR-1; TR-½	W-G: GM	W-G: GC	CB	DB	GB	WBO	LB	LI	AU-O	
Residential Uses																
Single-family dwelling	P	P	P	P	P	–	–	–	SP	–	–	–	–	–	–	
Two-family dwelling	SP*	SP*	SP*	SP*	SP*	–	P*	–	SP*	–	–	–	–	–	–	
Multifamily dwelling	–	–	–	SP*	SP*	–	P*	–	SP*	–	–	–	–	–	–	§100-49
Townhouse dwelling	–	–	–	SP*	SP*	–	P*	–	SP*	–	–	–	–	–	–	
Accessory apartment, existing structure	SP	SP	SP	SP	SP	–	–	–	SP	–	–	–	–	–	–	§100-42
Accessory apartment, new accessory structure	SP*	SP*	SP*	SP*	SP*	–	–	–	SP*	–	–	–	–	–	–	§100-42
Upper-floor apartment	–	–	–	–	–	–	P*	–	P*	P*	–	–	–	–	–	
Back-facing apartment	–	–	–	–	–	–	SP*	–	–	–	–	–	–	–	–	
Manufactured home	P[1]	–	–	–	–	P*	–	–	–	–	–	–	–	–	–	§100-15A(6)
Manufactured home park	–	–	–	–	–	SP*	–	–	–	–	–	–	–	–	–	§100-47
Assisted living facility	–	–	–	SP*	SP*	–	–	–	–	–	SP*	–	–	–	–	
Continuing care retirement community	–	SP*	SP*	SP*	SP*	–	–	SP*	–	–	–	–	–	–	–	§100-45
Nursing home	–	SP*	SP*	SP*	SP*	–	–	–	–	–	–	–	–	–	–	
Business Uses																
Adult use	–	–	–	–	–	–	–	–	–	–	–	–	–	–	SP*	§100-18

ATTACHMENT A

Use	District															Reference
	A	R-2	R-1	R-½	R-¼	TR-1; TR-½	W-G: GM	W-G: GC	CB	DB	GB	WBO	LB	LI	AU-O	
Agriculture	P	P	P	P	P	--	--	--	--	--	--	--	--	--	--	§100-15B(9)
Animal husbandry	P	P	P	--	--	--	--	--	--	--	--	--	--	--	--	§100-15B(10)
Artisanal Use	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--	--	
Bank	--	--	--	--	--	--	P*	P*	P*	P*	P*	--	--	--	--	
Bed & Breakfast	SP	SP	SP	SP	SP	--	--	--	--	--	--	--	--	--	--	§100-33
Convenience store	--	--	--	--	--	--	--	--	P*	SP*	P*	--	P*	--	--	
Day care, adult	SP*	SP*	SP*	SP*	SP*	--	SP*	SP*	SP*	--	SP*	--	P*	--	--	
Day care center	SP*	SP*	SP*	SP*	SP*	--	SP*	SP*	SP*	--	SP*	--	P*	--	--	
Entertainment, commercial indoor	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--	--	
Family home day care	SP*	SP*	SP*	SP*	SP*	--	--	--	--	--	--	--	--	--	--	§100-33
Farmers' Market	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--	--	
Funeral home	--	P*	P*	--	--	--	--	--	P*	--	--	--	P*	--	--	
Greenhouse and nursery	P	P*	P*	--	--	--	--	--	P*	P*	P*	--	--	--	--	
Home occupation - Class I	P	P	P	P	P	P	P	--	--	--	--	--	--	--	--	§100-33
Home occupation - Class II	SP*	SP*	SP*	SP*	SP*	--	SP*	--	--	--	--	--	--	--	--	§100-33
Kennel	SP*	--	--	--	--	--	--	--	--	--	--	--	--	SP*	--	
Light industry	--	--	--	--	--	--	P*	P*	--	--	--	--	--	P*	--	§ 100-38C
Lodging	--	--	--	--	--	--	P*	P*	P*	--	--	--	--	--	--	
Medical or dental clinic or group offices	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--	--	
Mining	SP*†	--	--	--	--	--	--	--	--	--	--	--	--	--	--	§100-37
Motel or hotel	--	--	--	--	--	--	P*	P*	P*	P*	P*	P*	--	--	--	
Motor vehicle repair shop	--	--	--	--	--	--	--	--	--	--	SP*	--	--	SP*	--	§100-48
Motor vehicle sales	--	--	--	--	--	--	--	--	--	--	SP*	--	--	--	--	
Motor vehicle service station	--	--	--	--	--	--	--	--	--	--	SP*	--	--	--	--	§100-48
Office	--	--	--	--	--	--	P*	P*	P*	P*	P*	--	P*	P*	--	
Parking structure	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--		
Restaurant	SP*	--	--	--	--	--	P*	P*	P*	P*	P*	P*	--	--	--	
Restaurant, drive-through	--	--	--	--	--	--	SP*	P*	--	P*	P*	--	--	--	--	§ 100-38B

Use	District															Reference
	A	R-2	R-1	R-⅓	R-¼	TR-1; TR-⅓	W-G: GM	W-G: GC	CB	DB	GB	WBO	LB	LI	AU-O	
Retail business *(not listed elsewhere)*	--	--	--	--	--	--	P*	P*	P*	SP*	P*	P*	P*	--	--	§100-50
Service business *(not listed elsewhere)*	--	--	--	--	--	--	P*	P*	P*	SP*	P*	--	P*	--	--	§100-50
Skating rink, bowling alley.	--	--	--	--	--	--	--	SP*	--	--	P*	--	--	--	--	
Special uses for historic structures	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	SP*	--	§100-51
Telecommunications facilities, co-location	P*	--	--	--	--	--	--	--	P*	P*	P*	--	--	P*	--	§100-39
Telecommunications facilities, new towers	SP*	--	--	--	--	--	--	--	--	SP*	SP*	--	--	SP*	--	§100-39
Theater	--	--	--	--	--	--	P*	P*	P*	SP*	P*	--	--	--	--	
Veterinary office or animal hospital	SP*	--	--	--	--	--	--	SP*	--	SP*	SP*	--	P*	SP*	--	
Warehouse	SP*	--	--	--	--	--	--	--	--	P*	P*	--	P*	P*	--	
Waterfront-compatible	--	--	--	--	--	--	--	--	--	--	--	SP*	--	--	--	
Waterfront-dependent	--	--	--	--	--	--	--	--	--	--	--	SP*	--	--	--	
Open Space Uses																
Campground	P*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Commercial timber harvesting	SP	SP	SP	--	--	--	--	--	--	--	--	--	--	--	--	§100-44
Conservation area	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Golf course or country club	P*	P*	P*	--	--	--	--	--	--	--	--	--	--	--	--	
Park, playground or other public recreation facility	P*	P*	P*	P*	P*	P*	--	--	P*	--	--	P*	P*	P*	--	
Park, pocket	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	
Recreational business	SP*	SP*	SP*	--	--	--	--	--	SP*	--	--	--	P*	--	--	§ 100-38D
Wildlife refuge	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Community Uses																
Cemetery	SP*	--	SP*	--	--	--	--	--	--	--	--	--	--	--	--	§100-43
Church or place of worship	P*	P*	P*	P*	P*	--	--	P*	P*	P*	P*	--	P*	--	--	
Civic or youth center	--	SP*	SP*	SP*	SP*	--	P*	P*	SP*	--	--	--	P*	--	--	
Club	--	SP*	SP*	SP*	SP*	--	--	--	SP*	--	--	--	P*	--	--	
Cultural Center	--	--	--	--	--	--	P*	P*	--	--	--	--	--	--	--	

Use	District														Reference
	A	R-2	R-1	R-½	R-¼	TR-1; TR-½	W-G: GM	W-G: GC	CB	DB	GB	WBO	LB	LI	AU-O	
Essential services	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	P*	
Hospital	--	SP*	SP*	SP*	SP*	--	--	P*	SP*	SP*	SP*	--	SP*	--	--	
Library or museum	--	SP*	SP*	SP*	SP*	--	P*	P*	P*	--	--	--	SP*	--	--	
School, private	--	SP*	SP*	SP*	SP*	--	--	SP*	SP*	--	--	--	P*	--	--	
School, public	P*	P*	P*	P*	P*	--	--	--	P*	--	--	--	P*	--	--	
Small wind energy facility	See Section 100-32 of this Chapter															

[1]Only as an accessory use to agriculture.

Tab 11

Tab 11

TOWN OF LLOYD TOWN BOARD
REGULAR MEETING
JULY 17, 2013

Present: Supervisor Paul Hansut
Councilmember Kevin Brennie
Councilmember Herbert Litts
Councilmember Michael Guerriero
Councilmember Jeffrey Paladino

Also present: Sean Murphy, Town Attorney
Rosaria Peplow, Town Clerk
Kate Jonietz, Secretary

6:30 PM – Supervisor opened the meeting and led the Pledge of Allegiance.

Public Information Meeting: Discussion of the proposed construction of a shared use path between New Paltz Rd. (across from the Highland Fire Station) to Tony Williams Park; The purpose of the meeting is to present and discuss the approved change in the project scope and the resulting design options developed by the team headed by Barton & Loguidice, P.C. The goal of this meeting is to obtain comments and input from key stakeholders, local residents and business owners. This public informational meeting is part of the continuing efforts by the Town of Lloyd, the New York State Department of Transportation and the Federal Highway Administration to encourage public input into the development of multi-modal projects.

Ted Kolankowski, Barton & Loguidice, said that this is Phase 3 of the Rail Trail project going west from Tony Williams Park to Highland Hose Fire Station II. He offered brochures outlining the project and said that there is also a comment form available if one would like to send a comment in by mail. This project is funded by the NYS Department of Transportation and the Federal Highway Administration; it is Transportation Enhancements Funding. The TEP funds program will no longer exist after this year. This is a 20% local match and 80% federal match. The objectives of the project are to provide a safe, functional and attractive shared-use path, insuring compatibility to the existing trail using the same width and the same kind of facilities that are on the trail that begins with the Walkway over the Hudson and eventually provide a continuous connection through the Town of Lloyd. The project proposal is to go under Riverside Road from Tony Williams Park; an underpass structure will need to be created similar to the one constructed at Mile Hill Road. There are existing bridges; one is a two-bay bridge over the Black Creek which will be rehabbed by putting on a new deck but retaining the historic appearance. The original project scope was to go from South Street along Route 299 and connect to the Town-owned easements and then to Tony Williams Park. This is the only segment that is going to be built at this time. A scope change was submitted to the Department of Transportation about nine months ago and the scope change was approved. The result was that B&L was able to address a number of comments that were made about the project. One of the questions was how the Town would be able to afford the project as the original budget for the project from Tony Williams Park to South Street was going to be $3.6-million. The first segment of the Trail was built at a time when it was easy to get additional money, that program was not capped; additionally, there was money from the Stimulus program. These monies do not exist anymore and the project had to be scaled down. The Trail would have crossed private property from New Paltz Road to connect to the right-of-way of Route 299; another change was that this project does not require any acquisition and will be built on Town land which simplifies the schedule and the cost. The DOT had safety concerns due to transitioning from the off-road trail into the road right of way as there were some areas constrained by wetlands and other natural features putting the Trail close to Route 299. This is now not a concern. Most of the DOT comments have been addressed by changing the scope of the project and they have been very accommodating. The budget has been re-estimated to $1.9-million, which includes everything. The local match is exactly 20% of the programmed amount so there is not the worry of an extra large local match. The schedule is that the design report is submitted to NYSDOT who will review it and make comments which will be addressed by October 2013. The next step will be to do advance detail drawings, which hopefully will be done in December; the final design will be done from December to February. It should be ready for bidding in April 2014, construction to begin in the spring and completion is expected to be in the fall of 2014.

Supervisor asked the amount of the local share and how much money the Rail Trail has for the project.

4 acres owned by a man living in Brooklyn whom he met at the Highland Diner to discuss the project. A comparable from across the road said that price was $120,000 and Smith does not feel that the price for this property will be a problem and would be part of the acquisition costs of building the project.

Smith said that the estimated cost is $7-million which could go down as there is some engineering work being done; however, that may be lower if they can redesign the turning point.

Reynolds asked how many gondola cars would be used in the project.

Smith replied that there would be 25 cars on the line initially and that could be increased to 50 cars if that was required. Steve Turk spoke to Matt Smith about 'loiter time', which is the time that people should be in the terminals, 4 minutes, because that is not long enough to make them upset about waiting but long enough for them to look at the electronic information and brochures available to them.

Fran Raucci asked if he was still in contact with the tourism boat companies and she felt that the gondola project was very exciting.

Smith answered that he is and they call quite frequently. As soon as the Park is finished, ***Rip Van Winkle*** wants to start using the dock immediately; that is a 100-foot ship and will be able to dock right along the bulkhead as even in low tide there is 10-feet of water. Those people want to go to the Walkway; it is our job to get them from the dock to other places.

Liz Weisz said that it was an impressive project and asked if he had considered visual impact on the views for people not riding in the gondola. She also asked what he based his estimate on in terms of water traffic.

Smith that had been considered and he spoke with a representative of Scenic Hudson and they don't think it will be a problem although they don't have an institutional opinion as yet. It will be just above the trees and won't be intrusive. There are only a couple of houses that will be able to see the gondola and it will not be a negative impact from the River. He feels that it is good that it will be seen because it will look good and attract people. The ***SS Columbia*** will carry 2,000 people, even if it was 1,000 people, it would take 40 big busses, a half a day or more to get people from the Riverfront to the top. Other ships vary 100 to 400; the ***Rip Van Winkle*** carries 200 to 300. Most of the boats come up the River between the end of summer and beginning of winter, Leaf Peepers, in the fall.

Supervisor asked if he was requesting to be Project Manager for the proposed Hudson High Line.

Smith said that he would like to be Project Manager in the same manner as he is for the Bob Shepard Highland Land Park, in an unpaid position.

Brennie said that the Board was going to give him $100,000 but since he does not want the salary they will give it to Recreation programs.

Smith said that he would rather that the $100,000 went to the Park.

Paladino asked the next steps.

Smith replied to pursue funding.

MOTION made by Brennie, seconded by Paladino, to appoint Matthew K. Smith as Project Manager for the Hudson High Line gondola project, at no remuneration.

Five ayes carried.

Weisz asked if there should not be another information meeting.

Supervisor said that this presentation was Smith sharing his vision with the Town Board and those present at this meeting. The purpose of the motion is to authorize Matt Smith to find out more on the project; there will be public hearings on this.

Smith said that he needs to find out if there is money available for such a project. He thanked the Town Board for their consideration.

2. OLD BUSINESS

A. Brad Builders

Supervisor said that this is reflected in Resolution N. of this agenda.

Barton said that this is the same application that the Town Board looked at last month; it has been sent to Ulster County Planning Board, this opens it for public comment.

B. Presentation of draft Comprehensive Plan

Supervisor said that Brad Scott, Chairman of the Review Committee, and some members of the committee are here. This is a presentation of the draft of the Comprehensive Plan; there will be public hearings and public input, vetting by both the Town Board and the community before the plan is adopted.

David Barton distributed copies of the draft report and said it will be available online tomorrow morning; it is a huge file but he will send it electronically to anyone who would like to receive it. This is provided to everyone as the committee is looking for comment as to if the ideas brought forth in the document are sound and make sense for the Town. The committee has worked on it for over a year and a half and it has been discussed in public at Town Board meetings. The document is as good as the committee could make it at this point. There are some things that are not complete. If there are any questions or comments they can be returned to Barton and he will forward them to the Town Board for their consideration. The front sheet notes that this is a draft document for concept only. The second page was added which explains why it is being given to the public. If one wants a hard copy of the document, see Barton and he will furnish it; the Town Board has earmarked money in the budget to make sure that people could have copies. He suggested the best way to handle comments is to write them down, noting the chapter. He thanked Liz Weisz for working slavishly on the document. He noted that each of the chapters is broken up into sections which are numbered and he asked that any comments reference that number, which will make it easier for him to articulate the comments back to the Town Board. All comments will be included in a public record. They are most interested in reasonable and responsible reactions to the document.

Reynolds asked for an overview and the need for the document.

Barton replied that the zoning was finally adopted five years ago; a year into the zoning, it was realized that amendments were needed to be made to the zoning. It was found that the Zoning Board of Appeals was giving more variances and the zoning as manifest was not going to work. At the Tri-Board meetings (Planning, Zoning and Town Boards) the bigger picture was questioned and this is an attempt to make a long-term vision for the Town and the easy answer is that they would have made sense in the original document if not for (1) the crash that drove housing prices all over the map and (2) four months into the document it was realized that the document is 'schizophrenic'. There were contradicting items in the same document. The problem was that in looking up something, all that would be looked at would be that one section but then two more pages later, it would say the opposite. This document is supposed to guide all of the administrative action, at the Town Board level, ZBA level and the Planning Board level. The first attempt created a short term fix but four months later the committee began to take pieces of it apart because it was difficult to read. About six months in, it was determined that a more dramatic review was needed. Each member took a chapter for review. This is the result.

Reynolds asked if the document will be a guide or something that is required to meet the terms once it is adopted.

Barton answered 'yes and yes'; the goal in the document is to create flexibility. In the past when a developer came to the Town, it was difficult to point to a specific part of the Comprehensive Plan that scoped it. There is a great section in here – I wish Donna Deeprose was here in the 2005 plan. The County in reviewing it the first time had a line in there that the 2005 plan took a snapshot of the Town and described it and that what he thinks has been the problem with the zoning maps from the beginning. The zoning map existing right now is the same zoning map that was in existence when we adopted the original map in1974 and that map was based on 1966 comprehensive plan. The world is a different place from that 1966 thinking; for example, the Walkway Gateway zoning, new urban thinking and an attempt to get people back on their feet and out of their cars. When car was king, zoning was based on always riding to the store; the Gateway thinking is pushing that aside. This was a good committee to work with because there was such a range of personalities and talent and the resulting document feels better for the Town. The goal is to get as many people as possible to comment on it; in doing so, it will make this an even better document.

Supervisor said that there will be public hearings on this new document.

Barton said that he anticipates having a finalized draft document for official public comment in August.

3. NEW BUSINESS

A. Steve Schmidt – solar energy presentation

Schmidt said this was not actually solar energy but another energy opportunity for the Town. He read about the proposal to install solar panels on Town properties and the

numbers; he feels that would be a long commitment for the Town. He said that there are a lot of failures on solar panels as they do not have the 25 and 50-year lifetime that they did. He said in looking at the net results it was not really the Town investing and saving all of that money, it was an outside party who would make the money and save the Town 10% but never exceed what they are paying Central Hudson. For tying up the Town's buildings and surface areas, 10% is not a big number. He introduced Brian Nichols, an independent representative from Viridian Energy. Everyone has the ability to buy their electricity from anyone. Viridian is a company that he has been involved with for three or four months and Brian a couple of years.

Brian Nichols said energy is deregulated in New York; Viridian Energy is one of many ESCO's (energy supply companies). A Central Hudson bill consists of three things: delivery, service, supply. This only relates to supply. Of the 100% of the energy supplied by Viridian to their customers, 20% is green energy i.e. windmills, hydroelectric plants, solar etc.; it will save money on the bill over time and will help the environment tremendously. There is no fee involved, nothing has to be purchased or meters changed.

Schmidt added that there is no commitment, it can be done month-to-month; he has four personal meters. When he signed on the next month they were offering a rate of 4.49% and an opportunity to lock in for six months.

Nichols said that Viridian is averaging 21%; on the national grid Viridian is 60% cheaper. The City of Hudson just switched over to Viridian.

Schmidt commented that this is just to give other information to look at comparable to the solar.

Nichols said that his house is in Dutchess County with Central Hudson and he has been with Viridian 14 months and he has saved $471.00. He knows that he saved that amount because Central Hudson who is a responsible utility company has an option on their web page for energy choice comparison if you register your Central Hudson bill. Every month you get your bill and they tell you what you paid on the bill with Viridian Energy and what you would have paid if you had Central Hudson. They have found people with other ESCO's, and have done a comparison, they have overpaid $1,000.00. It will tell you if you are saving or not. Central Hudson buys it for 8-cents a kilowatt and sells it for 8-cents a kilowatt; they are not allowed to profit. The only people who can profit off the supply portion of energy are ESCO's. Central Hudson makes their money from delivery and service.

Schmidt said that he saved $105.00 on his residential bill the first month. You save 21% with Viridian. You possibly save 10% with a long term commitment with the solar program. Other towns are considering Viridian.

Guerriero asked how long the Town would be locked in.

Both answered that it could be for only one month, there are several options.

Nichols added that Viridian offers natural gas at 4% cheaper than Central Hudson. It can be tried for a couple of months if you did not like it, it can be cancelled. There is no cancellation fee on a variable rate on a fixed rate if you cancel before term there is a $50.00 fee.

Schmidt offered to put together a rate package for the Town Board to review.

4. PRIVILEGE OF THE FLOOR

John Mazzetti, 7 Pine Terrace, said that received a call late this afternoon that residents of Pine Terrace were coming to this meeting. The reason that they are here is to ask the Town Board to look into a project that has been going on for about 3 years adjacent to their residential area that is an agricultural area. They understand that it is an agricultural area and the ramifications of that but they feel that as citizens of the community they have the right to have peace and quiet; they are not having that at this point. Earlier this evening Claire and Matt were talking about the great projects, he commends the beautification, the tourism, and the types of things that speak to the quality of life. That makes him proud that he is a resident of Lloyd. There is a quality of life issue on Pine Terrace. Mr. Hansut mentioned Mountainside Woods and the construction that is going on there and how he sent notification to the residents of that residential area that there would be construction, bulldozers and trucks going in and out and he commends him for that. Pine Terrace residents have had trucks going in and out, loading and unloading, bulldozers every Saturday and Sunday and the honking of safety horns. It looks obvious to him that that they don't know what is happening now since

Tab 12

Tab 12

From:	Luke Clemente
To:	sjcuciti@hotmail.com; David Barton; Wendy Rosinski
Cc:	Alexander, Neil; Patricia Brooks L.S.; Joseph Dannible; Nick Clemente
Subject:	[EXTERNAL]: RE: Memo from Town of Lloyd Planning Board; 3260 Route 9W Ready Mix Concrete Plant Application
Date:	Thursday, April 23, 2026 8:10:37 AM
Attachments:	Traffic Study Ulster.pdf

Traffic study attachment being sent separately due to file size.

From: Luke Clemente
Sent: Thursday, April 23, 2026 8:08 AM
To: sjcuciti@hotmail.com; David Barton <dbarton@townoflloyd.gov>; 'Wendy Rosinski" <wrosinski@townoflloyd.gov>
Cc: Alexander, Neil <nalexander@cuddyfeder.com>; Patricia Brooks L.S. <pbrooks@cpasurvey.com>; Joseph Dannible <jdannible@edpllp.com>; Nick Clemente <nickc@bondedconcrete.com>
Subject: RE: Memo from Town of Lloyd Planning Board; 3260 Route 9W Ready Mix Concrete Plant Application

April 23, 2026

Town of Lloyd Planning Board
12 Church Street
Highland, NY 12528

Re: 3260 Route 9W Ready Mix Concrete Plant Application

Dear Chairperson Cuciti, Director Barton and Town Clerk Rosinski:

In response to Director Barton's request on April 2, 2026 for additional information regarding the above-referenced application, submitted on March 9, 2026, please find our responses, which we would request the Town Clerk Rosinkski to distribute this email and it's attachments to the members of the Town Board as well:

• *A description of the maximum plant capacity in yards per day and other related information such as amounts of aggregate stored, amounts used per day and machinery used on site:*

The proposed hours of operation are 5:00 AM to 6:00 PM Mon-Fri and 6:00 AM to 1:00 PM

on Saturdays. The ready-mix concrete business is a seasonal; tied to the construction industry. During the construction phase of the plant, construction activities will be limited to 7:00 AM-5:00 PM.

The winter season from December to March is typically a period of low activity with the summer months being the period of peak production. The proposed hours of operation also include start up and shut down time. Typical concrete production takes place between the hours of 6:00 AM to 3:00 PM. The proposed plant is a market expansion plant targeted to serve Ulster County, and it will take a number of years to build the customer base in order to create the customer demand to utilize the proposed plant's capacity. Within 5 years, we are targeting to deploy 6 full-time concrete mixer drivers that could deliver 30 loads per day. Assuming full 10 CY loads (albeit full loads are not typical), the targeted peak production could reach 300 CY in a single day.
In addition to the use of concrete mixers, the site will be supplied by tractor trailers delivering aggregate and cement to the plant. A representative CY of concrete weighs approximately 2 tons with +/-75% being sand and stone and +/-15% being cement. The balance primarily comprised of water.

Assuming a peak production day of 300 CY as outlined above, approximately 90 tons of cement 450 tons of sand and stone will be consumed during a peak production day. This equates to roughly 3 tractor trailer deliveries of cement and 11 tractor trailer deliveries of sand and stone. Approximately 400 tons of sand and stone and 100 tons of cement will be stored on site at all times. Cement will always be stored in water-tight and sealed cement silos. Sand and stone will be stored both inside the batch plant building's aggregate silos, outside in ground hoppers and in defined, segregated aggregate stockpile areas.

In addition to use of concrete mixers and tractor trailers, the site will contain a front-end loader to be used to feed the plant and sweeper/water truck to maintain site hygiene.

• *A noise study*
A preliminary noise analysis has been completed, subject to finalization upon confirmation of proposed site configuration. Key findings:

1. Baseline sound level readings were obtained at a ready-mix concrete plant affiliated with the applicant, which is similar to the proposed ready-mix concrete plant.

2. Equipment operating around the ready-mix concrete plant, and not the plant itself,

is the primary source of noise at a ready-mix concrete plant.

3. The primary sources of noise at a typical ready-mix concrete plant (not the one proposed as outlined in detail below):
    a. The cement blower used to transfer cement from the bulk cement delivery trucks to the storage silos (primary source of noise). The noise is generated by both the compressor and the higher RPM turning of the truck's diesel engine, which is powering the compressor.
    b. The concrete mixer trucks during loading (secondary source of noise) vs. on-site transiting of such vehicles. During the loading, the mixer's diesel motor turning at higher RPMs in order to rotate the mixer barrel is the noise source.

4. Three closest occupied neighbors, all classified in the LI zoning district, have been identified (Sound Receptor Map attached hereto):
    a. Weldner Memorials (R3) (closest)
    b. Peoples II Auto Sales & Service (R2)
    c. Residence at 351 Upper North Road (R1) (farthest)

5. Following the DEC noise guidance, ambient sound level increases of 6 dBA or less are considered non-material in nature in a non-industrial area (i.e., our design will be based on a more conservative standard given the project is within an industrial zone).

6. In order to avoid exceeding the 6 dBa limitation, the Applicant has proposed additional sound mitigation measures that are atypical for a ready-mix concrete plant:
    a. Air compression for off-loading cement will be performed by a ground compression unit (vs. the tractor trailer on-board compressor and diesel engine) to be located inside a fully enclosed sound mitigation room.
    b. Utilization a fully enclosed concrete mixer bay to mitigate sound during the loading of the mixers.

With the proposed sound mitigation measures, the Applicant will be able to i) avoid impacting an increase of more than 6 dBa at the nearest receptor points as outlined above and ii) comply with the Town Noise Code requiring the avoidance of unreasonably loud, disturbing and unnecessary noise.

• *A traffic study based on the total maximum output of the plant, number of concrete delivery trucks, and number of supply trucks per day as well as employee and*

incidental vehicles. The study should include the safety of the 9W turnaround.

Attached is the traffic study. As detailed in the traffic study and summarized in the Section 6 conclusions:

1. The Proposed project is expected to generate 18 vehicle trips during the AM peak hour and 16 vehicle trips during the PM peak hour. The anticipated traffic volumes for this Plant will be below the 50-vehicle threshold outlined by the Institute for Transportation Engineers (ITE), indicating that detailed intersection analysis is not needed and the site generated traffic will be accommodated by the existing roadway network.

2. The sight distance assessment indicates that adequate intersection and stopping sight distance is provided for a passenger car and a combination truck at the Site Driveway on US Route 9W.

3. The gap analysis indicates that there are an adequate number of available gaps to serve the Turnaround intersections on US Route 9W for all conditions, while providing desirable operating conditions.

4. The Auto-Turn assessment indicates that the worst-case design vehicles can adequately make the left-turn from US Route 9W to access the Northern and Southern Turnaround intersections and then can make a right turn back onto US Route 9W in the opposite direction. Mitigation is not recommended at these intersections.

• *Long form EAF part 1*

The Full Environmental Assessment Long Form Part 1 with EAF Mapper Summary Report is attached as prepared by Joseph C. Dannible, RLA, of EDP/Environmental Design Partnership. It is important to underscore that the basic purpose of SEQR is to incorporate the consideration of environmental factors into the existing planning, review and decision-making processes of state, regional, and local government agencies at the earliest possible time. It was the intention of the NYS Legislature that the protection and enhancement of the environment, human and community resources should be given appropriate weight with social and economic considerations in determining public policy, and that those factors be considered together in reaching decisions on proposed activities. Accordingly, it is the intention of SEQRA that a suitable balance of social, economic, and environmental factors be incorporated into the planning and decision-making processes of state, regional and local agencies. It is not the intention of SEQR

that environmental factors be the sole consideration in decision-making.

SEQRA Section 617.7 sets forth the criteria to determine whether a Proposed Action may have a significant adverse impact on the environment. A "Negative declaration" means a written determination by a Lead Agency that the implementation of the action as proposed will not result in any significant adverse environmental impacts. The Lead Agency must determine either that there will be no adverse environmental impacts or that the identified adverse environmental impacts will not be significant. Based on the submissions to date, the Project meets the definition of a Negative Declaration.

• *Elevations/Schematic cross-section of the entire plant including materials bins silo and conveyor.*
Attached

• *An analysis of the amount of water that will be used at maximum plant capacity, including waste water for washing as well for concrete production and a detailed description and drawing of the water supply system.*

On a peak day of 300 CY, as described above, approximately 9,000 gallons of water will be consumed. The site currently has an existing commercial grade well that was originally installed as part of the original NYS Trooper barracks building, which well has continued to serve Aldo's Automotive Precision Machine, the prior owner and current tenant. We propose to install a 10K gallon water tank as part of the project.

- *A detailed description and schematic drawings of any wastewater disposal system and sanitary sewer system.*

Attached is a Representative Layout of the Wash Out Basins Located Inside the Batch Plant. The Wash Out Basins are a closed loop system. All waste water is re-used in the production of concrete, along with the re-use of any waste aggregate.

The septic system is existing and is located on the site plan immediately behind the former Trooper Barrack building. Septic is strictly for the septic generated within the Trooper Barracks building. The building will be re-purposed as a lunchroom and bathroom for on-site employees.

• *A map of the area with projected dust emissions , if any, onto adjacent properties. A detailed description of the dust control system and a description of any air permits required.*

The applicant will maintain compliance with all federal, state and local air regulations. It is acknowledged that public perception of ready-mix concrete plants can quickly conjure images of dust concerns. Unfortunately, past poor practices within the industry, along with antiquated concrete plants, have served to reinforce this poor perception. Most importantly, these former practices are no longer allowed by NYS DEC. Failure to abide by current air quality practices would result in civil and/or criminal prosecution. Our proposed new state-of-the-art ready mix concrete batch plant will be fully compliant with air quality standards as illustrated below.

There are two typical areas of air quality concerns when discussing ready-mix concrete plants: cement dust and ground dust.

To address the concern around cement dust requires an overview of the proposed ready-mix concrete plant. The proposed plant will contain a rectangular cement silo with three individual, fully enclosed and separate compartments. The cement silos are designed at a height that facilitates the gravity feeding of the cement into the ready-mix concrete mixer. Cement Is transported to the site using fully enclosed cement haulers. Cement is discharged into the cement silos pneumatically (using low pressure compressed air). The cement hauler is self-pressurized to pneumatically deliver the cement to the top of the cement silo using an enclosed and sealed pipe from the cement hauler. In order to prevent over pressurizing of the cement silos during loading, excess air pressure is relieved through a bag house (aka fabric filters) at the top of the cement silo. Such discharges are scrubbed of particulates to prevent discharge of fugitive cement emissions to the environment. These filters are routinely cleaned and inspected in order to maintain efficient and effective filtration

The cement is discharged from the silo using a fully enclosed rubber boot at the bottom of the cement silo into a scale. The batch computer controls a butterfly valve to facilitate and control the flow of cement out of the silo and into the cement scale. Once the batch computer determines the cement is ready to be released into the concrete mixer it will use another butterfly valve to control the continuous and gradual flow of the cement out of the scale and into the concrete truck below. The plant will be equipped with a shroud that is inserted around the discharge hopper at the mixer drum opening. This shroud will utilize a vacuum system with separate filtration to catch any fugitive cement emissions during the mixer loading process. The captured cement emissions are recycled, through a blower system, back into the cement silo for re-use. As the cement is placed in the mixer drum it immediately comes into contact with the wet aggregate already in the mixer drum which quells the potential for dust coming from the mixer drum. Due to the use of these environmental control measures, NYS DEC does **NOT** require an air

emission permit for ready mix concrete plant. NYS DEC does require nonetheless that the site be registered with NYS DEC for purposes of monitoring compliance with the air regulations.

With respect to ground dust, the applicant is proposing substantial landscaping improvements to the property. In addition, the applicant will use a sweeper/water truck to maintain site hygiene to mitigate against the generation of ground dust.

In summary, there will be no off-site release of dust from the proposed project site to neighboring properties and the applicant will maintain full compliance with NYS DEC air regulations.

• *A summary of the total energy used at the plant, including all energy inputs and Emissions*

The proposed ready-mix concrete plant is a relatively lower user of energy given its nature as a material handling facility to assemble the sand, stone and cement ingredients into the ready-mix concrete mixer. The plant primary relies on gravity feed of the sand, stone and cement into the ready-mix concrete mixer. The primary use of electricity will be the conveyor belt motor that conveys the sand and stone aggregate from the ground hopper to the aggregate silos inside the batch plant building. The proposed plant will contain a propane/natural gas boiler for heating hot water used in concrete production from Nov 1 to April 1. It is anticipated that the plant at maturity could use upwards of 2,000 gallons of propane per year or natural gas equivalent (+/- $8K) in the process of heating hot water. It is further anticipated that the electric demand of the plant at maturity will use less than 120 MWhrs per year (+/-$24K).

• *Other subjects not raised in the Town's letter request that we would like to provide comment:*

Site Lighting: All site lighting will be in full compliance with the Town's Zoning Code

Petroleum Bulk Storage (PBS) registration*:* All petroleum tanks on site will be registered with NYS DEC and contain double containment protection systems.

Economic Impacts: The site at maturity will generate high paying blue-collar Teamster Union represented mixer driver positions. At maturity, site payroll will be in excess of $1MM. Other positions to be created: laborers, equipment operator, mechanic and

plant batcher. The proposed plant will represent in excess of $2MM of real property improvements that could result in 5X increase in the property value assessment.

In summary, the proposed Project, as a Light Industry use, in the Light Industrial zoning district will not emit objectionable levels of smoke, noise, dust, odor, glare or vibrations beyond the property boundaries.

Please let me know if you have any further questions or concerns. We look forward to appearing before both the Planning Board's workshop and its regular meeting agendas during May 2026 and continuing the review and discussion. Please confirm that we will be on the agenda at the next scheduled meeting.

Sincerely,

Luke Clemente

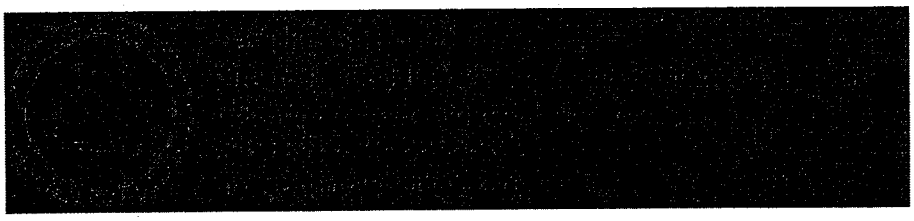
From: David Barton <dbarton@townoflloyd.gov>
Sent: Thursday, April 2, 2026 8:08 AM
To: Patricia Brooks L.S. <pbrooks@cpasurvey.com>; Luke Clemente <LukeC@bondedconcrete.com>
Subject: Memo from Town of Lloyd Planning Board

Good morning to you both,

Please find the attached memo from the Town of Lloyd Planning Board regarding the concrete batch plant application. Any questions, please contact this office.

Best,

Dave



Tab 13

Tab 13

scientific reports

Check for updates

OPEN

Impact of treated wash water from ready mix concrete plants on concrete properties and durability

Ayman Shamseldein[1]✉, Mohamed Amr[2] & Fatma Attia[2]

Concrete production consumes nearly 16% of global freshwater resources, highlighting the urgent need for sustainable alternatives to potable water. This study investigates the feasibility of using treated wash water from ready-mix concrete plants as a partial or full replacement for mixing water. Concrete mixes were prepared with 25%, 50%, 75%, and 100% wash water replacement ratios to evaluate the impacts on fresh and hardened properties as well as durability. Electrical resistivity testing was integrated into the experimental programme to assess the durability performance of concrete containing varying wash water contents. The results showed a reduction in workability of up to 50% compared to the control mix prepared with potable water. At 28 days, compressive strength decreased by 15.9%, 17.3%, and 18.3% for mixes containing 25%, 75%, and 100% wash water replacement, respectively. Electrical resistivity increased significantly with higher wash water replacement by 44% and 60% for mixes with 25% and 50% wash water replacement, and by up to six times at full replacement, indicating enhanced durability and resistance to corrosion. Furthermore, empirical equations were developed and validated against the experimental data to estimate the reduction in compressive strength of concrete mixes incorporating treated water. These findings provide performance-based guidance for the broader adoption of treated wash water as a sustainable alternative in concrete production while maintaining acceptable structural and durability performance.

Keywords Ready-mix concrete wash water, Wastewater reuse, Mechanical properties, Compressive strength, Concrete electrical resistivity, Durability, Sustainable concrete production

Concrete is a fundamental material of modern infrastructure and one of the most widely used construction materials worldwide[1,2]. The large-scale production of concrete in ready-mix plants requires substantial natural resources, particularly fresh water, and generates significant quantities of wastewater during the cleaning of mixing trucks and batching equipment. This wash water has a high pH value and typically contains cement particles, aggregates, and chemical admixtures, which cause both environmental and economic challenges. Conventional treatment and disposal methods for washing water are costly, while improper discharge can cause soil and water pollution[3].

Producing one cubic meter of concrete requires about 70 L of wash water for washing operations[4]. With an estimated annual worldwide concrete consumption of 30 billion tons, this translates to nearly 875 billion liters of wash water produced each year. Recycling wash water in concrete production not only reduces the demand for potable water but also creates broader sustainability benefits. The freshwater saved could be redirected to agriculture, with the potential to irrigate up to 218,750 feddans and support more than three million people when advanced irrigation methods are applied[5]. This practice provides two key benefits: reducing the consumption of freshwater resources[6] and advancing global sustainability goals, notably SDG 6 (Clean Water and Sanitation), SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

Several studies have investigated the feasibility of recycling wash water from ready-mix concrete plants. Tsimas and Zerkavi[7] studied the properties of wash water collected from ready-mix concrete plants. They found that all collected water samples had a pH above 11.5, classifying it as hazardous waste unsuitable for direct environmental disposal. However, the same samples met the chemical properties requirements of ASTM C1602[8] and BS EN 1008[9] indicating its suitability as mixing water in concrete. Klus et al.[6] reported that replacing 20% and 50% of mixing water with wash water in concrete production is feasible without negatively impacting the mechanical properties. They observed a reduction in setting time of about 15 min and a slight increase in both flexural and compressive strength at 28 days. Xuan et al.[10] highlighted that while wastewater composition is

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generally similar (cement hydration products and fine sand), the solid content varies significantly. They noted that the fine particles can provide a filler effect that enhances durability. They concluded that further studies are required to evaluate the effect of wastewater on concrete durability performance.

Other studies have drawn attention to the impact of using untreated wash water. Ghrair et al.[4], reported that raw wash water failed to meet the maximum concentration limits required by ASTM C1602[8], or BS EN 1008[9] standards and significantly reduced slump values and compressive strength, even after dilution. However, when treated wash water was used, no adverse effects on strength or workability were reported. Al-Joulani et al.[11] similarly found that replacing 30–40% of fresh water with treated wash water did not significantly affect the concrete strength.

Recent investigations have focused on self-compacting concrete incorporating wash water. Bahraman et al.[12] investigated the viability of utilising wash water from ready-mix plants and synthetic wastewater with varying total dissolved solids (TDS) levels in the production of self-compacting concrete. The findings indicated that the incorporation of wash water or synthetic wastewater into the concrete mixes reduced the workability. Moreover, the 28-day compressive strength results of all specimens utilising wash water or synthetic wastewater were decreased, except for the mixture with synthetic wastewater of 1000 mg/L TDS, which showed an increase of 13.35%. Utilising the wash water in the self-compacted concrete reduced the compressive strength by 2.87% relative to the control sample. The 28-day flexural strength of the specimens utilising wash water or synthetic wastewater improved, except for synthetic wastewater with TDS levels of 50 and 10,000 mg/L. Moreover, the results of the Scanning Electron Microscope indicated that both wash water and synthetic wastewater with total dissolved solids (TDS) levels of 3000, 5000, and 10,000 mg/L decreased durability and compressive strength. Aruntaş et al.[13] examined the fresh and mechanical characteristics of concretes produced using wash water from a ready-mix concrete plant. Wash water was utilised at rates of 25%, 50%, 75%, and 100% as a replacement for potable water. The results showed that the workability of specimens mixed with wash water was enhanced in mixes when using superplasticisers at maximume value of 2%. However, the 28-day compressive strength of the mixtures containing 100% wash water decreased by 10% relative to the control mix. They concluded that the utilisation of wash water in concrete production will significantly reduce environmental pollution.

Recently, Maddikeari et al.[14] conducted a comprehensive review of studies investigating the feasibility of utilizing wastewater resources, including wash water from ready-mix concrete plants, as a sustainable alternative to potable water in concrete production. Their review reported that the use of wastewater generally leads to a reduction in workability and slump values. Compressive strength was found to be negatively affected at early ages; however, strength enhancement can be achieved when the proportioning between potable water and wastewater is properly optimized. Furthermore, the authors emphasized that pre-treatment of wastewater can significantly reduce impurities and consequently improve the mechanical and durability performance of the produced concrete. The review concluded that this research area still requires further investigation, particularly with respect to long-term performance and durability. In addition, the study highlighted the need for developing effective pre-treatment strategies and establishing clear guidelines and standards to ensure the safe and reliable use of treated wastewater in concrete production.

Although several studies have investigated the reuse of wash water from ready-mix concrete plants, results remain inconsistent, particularly regarding its effects on workability and mechanical properties. Very few studies have examined the full replacement of potable water with wash water in concrete production. Moreover, most research has focused on mechanical properties, with limited attention to durability. These gaps highlight the need for a comprehensive study that evaluates not only the fresh and hardened properties of concrete with wash water but also its durability, providing guidance for practical application in sustainable concrete production.

In this study, an experimental program was conducted to evaluate the effects of replacing potable water with wash water collected from a ready-mix concrete plant. Replacement ratios of 25%, 50%, 75%, and 100% were investigated to assess both partial and full replacement. The influence of wash water replacement on key concrete properties, including workability, mechanical performance, and durability, was examined. Electrical resistivity testing was incorporated as a rapid, non-destructive, and portable method to evaluate the durability and corrosion resistance of concrete incorporating wash water. Furthermore, empirical equations were developed and validated to estimate the reduction in compressive strength, providing performance-based guidance for the sustainable use of wash water in concrete production.

The remainder of this paper is structured as follows: Sect. "Experimental programme" describes the experimental programme, including material properties, specimen preparation, and testing procedures. Section "Materials" presents and discusses the results, while Sect. "Wash water treatment" summarizes the main conclusions and implications of the study.

Experimental programme

An experimental programme was developed to evaluate the influence of wash water from ready-mix concrete plants on concrete properties. Five concrete mixes were prepared: one control mix with 100% potable water and four mixes in which potable water was partially replaced with wash water at ratios of 25%, 50%, 75%, and 100%. These wash water replacement ratios were selected to allow a systematic assessment of both partial and full substitution of potable water. Similar replacement ratios have been adopted in previous studies investigating the reuse of wash water in concrete production[13], allowing comparison of results and identification of threshold effects on fresh, mechanical, and durability properties of concrete.

Before use, the collected wash water was subjected to chemical analysis to assess its suitability. The prepared concrete mixes were then tested for workability (slump test), mechanical performance (compressive and tensile strength tests), and durability (electrical resistivity test). All concrete specimens were mixed, cast, cured, and tested under the same laboratory conditions, following the same procedures and standards to ensure consistency and comparability across all mixes.

Concrete mix	Wash water replacement ratio (%)	Water-cement ratio (W/C)	Cement (kg/m³)	Fine aggregate (kg/m³)	Coarse aggregate (kg/m³)	Water content (L/m³)
C	0	0.51	350	850	1100	180
M25	25	0.51	350	850	1100	180
M50	50	0.51	350	850	1100	180
M75	75	0.51	350	850	1100	180
M100	100	0.51	350	850	1100	180

Table 1. Concrete mix proportions.

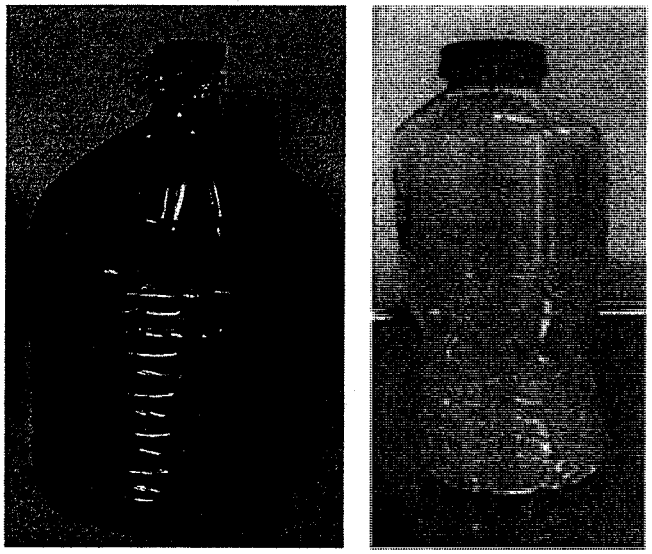

Fig. 1. Wash water before and after treatment.

Materials

In this study, ordinary Portland cement (CEM I 42.5 N), locally produced in Egypt and conforming to BS EN 197–1[15], was used. Crushed limestone coarse aggregate with a nominal maximum size of 20 mm and siliceous natural sand as fine aggregate were utilised. All concrete mixes were prepared using a tilting drum mixer. The mixture proportions were kept constant for all mixes, with the only variable being the type of mixing water. No additional chemical admixtures or superplasticizers were added to the concrete mixes in order to assess the direct effect of wash water replacement. The only admixture present was that originally contained in the collected wash water. The concrete mix designs followed the British Standards method, and the mixture details are summarized in Table 1.

Concrete samples were designed as follows: the control mix (C) used 100% potable water, while other mixes were labeled as "M" followed by the percentage of wash water replacement. For example, M75 denotes a mix in which 75% of the mixing water was replaced with wash water and the remaining 25% was potable water. The wash water was collected from a ready-mix concrete truck in the New Administrative Capital in Cairo, Egypt.

The Concrete mix proportions per cubic meter for the mix from which the wash water was collected are as follows: cement 450 kg/m^3, sand 650 kg/m^3, coarse aggregate 1150 kg/m^{3}and admixture 6.75 L/m^3. The used admixture was commercially available and it was retarding admixtures and high-range water reducers (X-Calibur X500), which conform to type G of ASTM C494 standards[16].

Wash water treatment

The wash water collected from the concrete transport truck was initially stored in containers. During storage, hardening occurred due to ongoing cement hydration. To mitigate this, a simple treatment procedure was implemented. The wash water was passed through a standard sieve with an opening size of 0.075 mm, which retained larger cementitious particles while allowing finer particles and dissolved solids to pass through. Following filtration, the appearance of the wash water changed from dark brown, indicating a high concentration of suspended solids, to a lighter yellow, reflecting the reduction of the suspended solids. Figure 1 presents the wash water before and after treatment.

Specimen preparation

The Concrete mixes were prepared using a laboratory-grade tilting drum mixer with a capacity of 0.15 m^3 (approximately 1/7 cubic meter). Each batch was mixed for 2 min to ensure uniformity. For every mix, six cubes of dimensions 150 × 150 × 150 mm and three cylinders measuring 150 mm in diameter and 300 mm in height were cast. All specimens were prepared in accordance with the requirements of BS EN 12,390[17].

Experimental tests

In this study, a series of tests was conducted to assess the impact of using wash water on the properties of concrete. A chemical analysis of the wash water was conducted to characterize its composition and assess its suitability for producing concrete mixtures. The fresh properties of concrete were evaluated using slump tests, while the hardened properties were examined through compressive strength and splitting tensile strength tests. Additionally, long-term performance and durability were evaluated using an electrical resistivity test.

A chemical analysis of the wash water was performed in accordance with ASTM D512[18] and ASTM D516[19]. Slump tests were performed immediately after mixing according to BS-EN 12,350–2[20]. Compressive strength tests were carried out on cube specimens after curing in potable water for 7 and 28 days, following the procedures of BS EN 12,390[17]. Splitting tensile tests were conducted on cylinder specimens after 28 days of curing, also in accordance with BS EN 12,390[17].

An electrical resistivity test was conducted in this study to evaluate the durability of concrete mixes produced using wash water. The electrical resistivity test provides a rapid, non-destructive means of assessing the likelihood of corrosion in reinforced concrete structures, as well as the overall quality and homogeneity of the concrete. It also reflects factors such as pore structure, moisture content, and the effectiveness of the curing process.

In this test, an electrical current (I) was applied to the surface of concrete specimens, and the potential difference (ΔV) was measured at specific points using copper electrodes.

Figure 2 shows a schematic diagram for the electrical resistivity test. The resistivity of concrete (ρ) was then calculated using Eq. (1):

$$\rho = 2\pi a \frac{\Delta V}{I} \tag{1}$$

where: ρ is the electrical resistivity of concrete in KΩ.cm. I is the applied electrical current on a flat concrete surface. ΔV is the potential difference measured at specific points on the surface. a is the distance between the applied electrodes.

The electrical resistivity test was conducted on cube specimens under both dry and fully saturated conditions at 28 days of curing. The resistivity measurement device frame was fabricated using additive manufacturing (3D printing). Copper rods with a diameter of 1 mm were embedded into pre-formed holes in the device frame. The experiment was conducted using a direct current (DC) power supply at 30 V, with multimeters used to measure the current and potential difference across the copper electrodes. Figure 3 shows the fabricated electrical resistivity test setup.

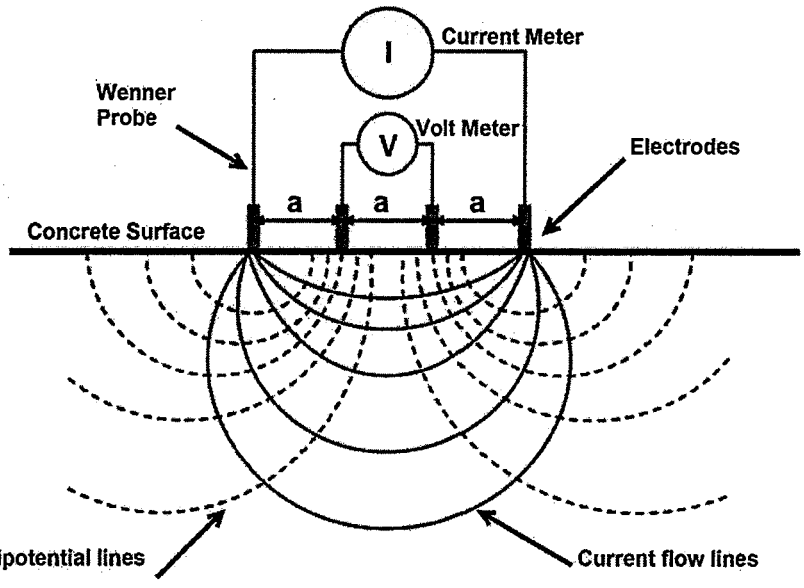

Fig. 2. Schematic diagram for the electrical resistivity test.

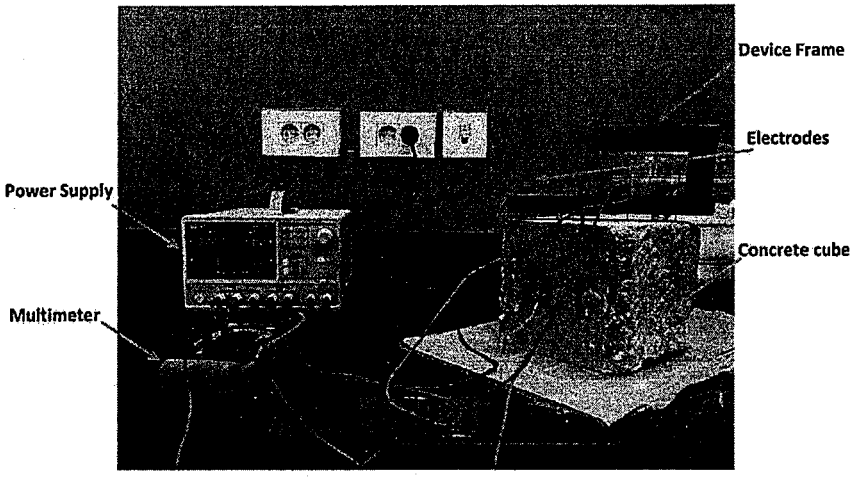

Fig. 3. Electrical resistivity test setup.

Parameter	Wash water	ASTM C1602	BS EN1008	ECP203
pH[(1)]	9.1	–	–	>7
Cl^{-1}(mg/l)[(2)]	0.0888	≤1.0	≤1.0	≤0.5
SO_3^{-2}(mg/l)[(3)]	0.30	≤2.5	≤1.6	≤0.3
TDS (mg/l)[(4)]	0.66	≤50	–	≤2.0

Table 2. The chemical analysis of the used wash water. [(1)]pH is the potential of hydrogen [(2)]Cl^{-1} is chlorine (mg/l) [(3)]SO_3^{-2} is sulphate (mg/l) [(4)]TDS is total dissolved solids (mg/l)

Test results and discussion

Chemical analysis test

A chemical analysis test was conducted on the wash water collected from the ready-mix concrete plant to assess its potential impact on the properties of fresh and hardened concrete. The results presented in Table 2, were compared with the requirements of BS EN 1008[9], ASTM C1602[5] and ECP 203[21]. It was found that all measured values complied with the ECP 203 limits. However, it should be noted that ECP 203 specifications are generally stricter than those of other standards, such as ASTM C1602[8] and BS EN1008[9] as also shown in Table 2.

The chemical analysis showed that the treated wash water contained residual solids and exhibited a higher pH than conventional potable water. It is also important to note that when wash water is blended with potable water, the concentration of dissolved salts is expected to decrease, potentially mitigating adverse effects.

Slump test

The slump test results indicated a significant reduction in workability when wash water was used in the mixes. While the control mix (prepared with potable water) showed a slump value of 12 cm, all mixes incorporating wash water recorded a slump of 6 cm. Figure 4 presents the slump test results for the mix with 25% wash water replacement ratio. The reduction in workability observed in concrete mixes incorporating wash water can be attributed to the presence of fine suspended cementitious particles and dissolved solids, which increase the overall surface area within the mix and consequently raise the water demand. These fine particles act as micro-fillers that absorb free water and reduce lubrication between aggregates, leading to lower slump values. As a result, the mixes prepared with wash water exhibited noticeably lower workability compared to the control mix.

Compressive strength test

The compressive strength test was carried out on cube specimens at ages of 7 and 28 days for all mixes in accordance with BS EN 12,390[17]. The test results are summarized in Table 3. It can be observed that incorporating wash water into the concrete mixes generally led to a reduction in compressive strength compared to the control mix. At 7 days, mixes with 25% and 50% wash water replacement showed a moderate reduction of 9.1% and 9.9% compared to the control mix, respectively. However, increasing the replacement ratio to 75% and 100% resulted in greater reductions of 21.1% and 24.7% compared to the control mix, respectively. For the 28-day results, compressive strength reductions of 15.9%, 17.3%, and 18.3% were observed for mixes with 25%, 75%, and 100% wash water replacement compared to the control mix, respectively. Notably, the mix with 50% wash water replacement exhibited only an insignificant reduction compared to the control sample. This minor variation could be attributed to the natural variability in concrete properties, which can account for fluctuations of up to 15%. A comparison of compressive strength results at 7 and 28 days for all mixes is illustrated in Fig. 5.

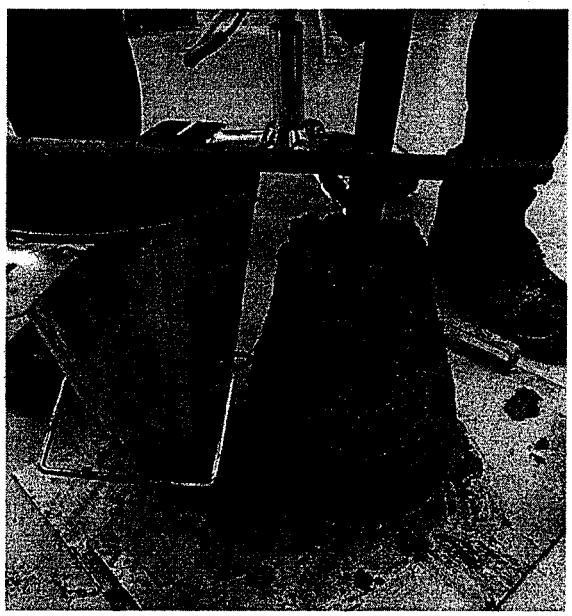

Fig. 4. Slump test results for the mix with 25% wash water replacement.

Concrete sample	7-day compressive strength (MPa)		28-day compressive strength (MPa)	
C	16.6 ± 1.1	–	25.6 ± 1.1	–
M25	15.1 ± 0.25	90.9%	21.5 ± 0.55	84.1%
M50	14.9 ± 0.75	90.1%	25.5 ± 0.55	99.9%
M75	13.1 ± 0.7	78.9%	21.1 ± 1.13	82.7%
M100	12.5 ± 0.90	75.3%	20.9 ± 0.15	81.9%

Table 3. Concrete compressive strength test results according to BS EN 12,390[17]. *Percentage of compressive strength of the samples incorporated wash water ($f_{cu\,exp}$) compared to the control sample (C).

It is worth mentioning that ECP 203[21] permits a maximum reduction of 10% in compressive strength when using non-potable water. Based on this criterion, the mixes with 25% and 50% wash water replacement satisfied the code requirement at 7 days, which aligns with the findings reported by Klus et al.[6]. Conversely, the mixes of 75% and 100% replacement ratios exceeded this permissible limit.

Although the total mixing water content was maintained constant for all mixes, the presence of residual cement particles, fines, and other impurities in wash water can reduce the amount of free water available for cement hydration. This reduction in free water influences hydration kinetics and can weaken the bonding within the cementitious matrix. For mixes with higher replacement levels (M75 and M100), the observed reduction in compressive strength can be attributed to the combined effects of reduced effective water availability and disturbed hydration mechanisms. The presence of dissolved salts and fine residues can interfere with normal hydration processes by disrupting the formation and continuity of calcium–silicate–hydrate (C–S–H) gel.

At lower wash water replacement ratios (M25 and M50), the presence of fine particles can produce a beneficial micro-filler effect, improving particle packing density and partially compensating for compressive strength reduction. However, at higher replacement ratios, excessive fines and impurities can hinder the hydration process and weaken the interfacial transition zone between the cement paste and aggregates, ultimately resulting in reduced compressive strength. These results are consistent with the findings of Aruntaş[13], they reported that wash water replacement has a negative impact on the compressive strength of concrete, particularly at higher replacement ratios.

The relationship between the ratio of the compressive strength of specimens produced with wash water to that of the control specimen produced with potable water (f_{cw}/f_{cp}) and the percentage of wash water replacement (WWr) is illustrated in.

Figure 6 for both 7 and 28 days. Here, f_{cw} represents the compressive strength of the concrete produced with wash water, while f_{cp} denotes the compressive strength of the control mix made with potable water. The

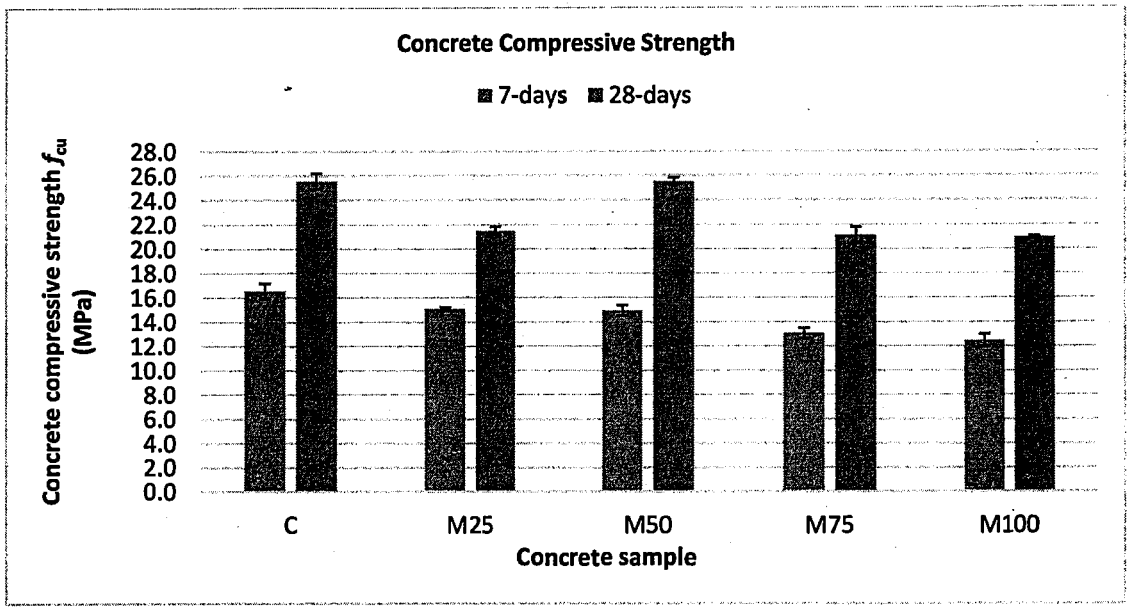

Fig. 5. Compressive strength of concrete mixes at 7 and 28 days.

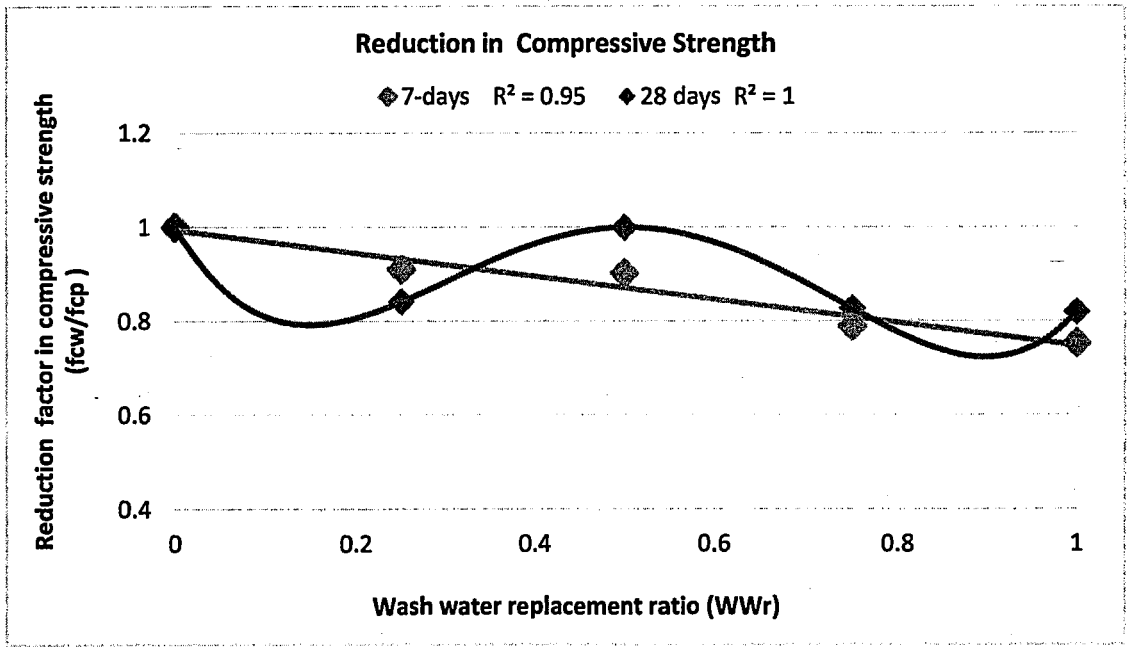

Fig. 6. Relation between reduction in compressive strength and wash water replacement ratio at ages of 7 and 28 days.

parametric study demonstrated the negative impact of the wash water replacement ratio on the compressive strength of concrete.

Based on the regression analysis of the experimental data, empirical formulas were developed to predict the reduction factor (f_{cw}/f_{cp}) in concrete compressive strength as a function of the wash water replacement ratio (WWr). The proposed Eqs. (2) and (3), which estimate the reduction in compressive strength at 7 and 28 days, respectively, are expressed as follows:

$$f_{cw}/f_{cp}\ (7\ \text{days}) = -0.2463(WWr) + 0.9936 \tag{2}$$

$$f_{cw}/f_{cp}\ (28\ \text{days}) = 12.169(WWr)^4 - 25.151(WWr)^3 + 16.074(WWr)^2 - 3.2729\,(WWr) + 1 \quad (3)$$

where: f_{cw} is the compressive strength of the concrete produced using wash water from the ready-mix plant. f_{cp} is the compressive strength of the concrete produced using potable water (control mix). WWr is the wash water replacement ratio in the concrete mix.

To validate the proposed equations, Table 4 compares the predicted compressive strength values ($f_{cu\,pre}$) obtained from the proposed equations with the corresponding experimental results ($f_{cu\,exp}$) at 7 and 28 days. The predicted values were calculated for mixes incorporating 25%, 50%, 75%, and 100% wash water replacement, based on the average compressive strength of the control mix (with 0% wash water replacement). The control mix achieved compressive strengths f_{cp} of 16.6 MPa and 25.5 MPa at 7 and 28 days, respectively.

In the present study, the proposed empirical equations were developed and validated within the scope of the experimental programme to provide preliminary, performance-based indicators for estimating compressive strength reduction in concrete incorporating wash water within the investigated replacement ratios. Figure 7 illustrates the relationship between the experimental and predicted compressive strength values for concrete samples with different water replacement ratios at ages of 7 and 28 days. The results demonstrate that the proposed equations show good agreement with the experimental data, indicating that it can be effectively used to estimate the reduction in compressive strength due to wash water replacement within the studied range. In addition, the uncertainty in compressive strength was calculated using Type A uncertainty, as expressed in Eq. (4).

$$U_A = \frac{standard\,deviation}{\sqrt{n}} \quad (4)$$

where: U_A is the uncertainty level in concrete compressive strength. n is the number of specimens.

The resulting uncertainty was then multiplied by 2 to achieve a 95% confidence level. The maximum calculated uncertainty was 1.3% for the compressive strength of the concrete cubes, indicating high reliability and consistency of the experimental results.

Splitting tensile test results

The splitting tensile strength test was conducted on three cylindrical specimens, each measuring 150 × 300 mm, to evaluate the tensile behaviour of the concrete mixes. The typical failure mode observed during the test is illustrated in Fig. 8. The corresponding test results are summarized in Table 5. The uncertainty for the test was calculated using Eq. (4), and the resulting uncertainty was 0.54%, indicating high consistency in the measurements. The analysis of the results showed a clear trend with the increasing proportion of wash water in the concrete mix, as summarized in Table 5. The control mix (C), prepared using 100% potable water, achieved a splitting tensile strength (f_t) of 2.60 MPa, serving as the reference value. For the mixes containing 25% and 50% wash water replacement, the splitting tensile strengths were 2.57 MPa and 2.70 MPa, corresponding to approximately 99% and 104% of the control mix strength, respectively. These variations fall within the normal range of experimental variability for concrete mixes, indicating that moderate levels of wash water replacement, up to 50% replacement, do not significantly affect the splitting tensile strength. A comparison of the splitting strength results for all mixes is illustrated in Fig. 9.

However, as the wash water replacement increased to 75% and 100%, the tensile strength showed a noticeable decline, recording values of 2.10 MPa and 2.00 MPa, respectively. These correspond to 81% and 77% compared to the strength control sample. This reduction in tensile strength at higher replacement levels can be attributed to the excessive presence of contaminants, unreacted cement particles, and fine solids in the wash water. These impurities can interfere with the cement hydration process, weaken the bond between the cement paste and

Concrete sample	7-day compressive strength (MPa)			28-day compressive strength (MPa)		
	Experimental ($f_{cu\,exp}$)	Predicted ($f_{cu\,pre}$)	$f_{cu\,exp}/f_{cu\,pre}$	Experimental ($f_{cu\,exp}$)	Predicted ($f_{cu\,pre}$)	$f_{cu\,exp}/f_{cu\,pre}$
M25	15.3	15.5	0.99	21	22.45	0.94
	14.8		0.96	21.4		0.95
	15.1		0.98	22.1		0.98
M50	14.2	16.5	0.86	25.5	25.05	1.01
	14.9		0.90	26.1		1.01
	15.7		0.95	25.0		1.01
M75	13.7	13.4	1.02	20.8	20.54	1.01
	13.2		0.98	20.2		0.98
	12.3		0.92	22.4		1.09
M100	13	12.4	1.05	21.1	21.23	0.99
	11.4		0.92	20.9		0.98
	13		1.05	20.8		0.98

Table 4. Validation of proposed equations. *Ratio of the experimental result ($f_{cu\,exp}$) to the predicted value ($f_{cu\,pre}$) of concrete compressive strength.

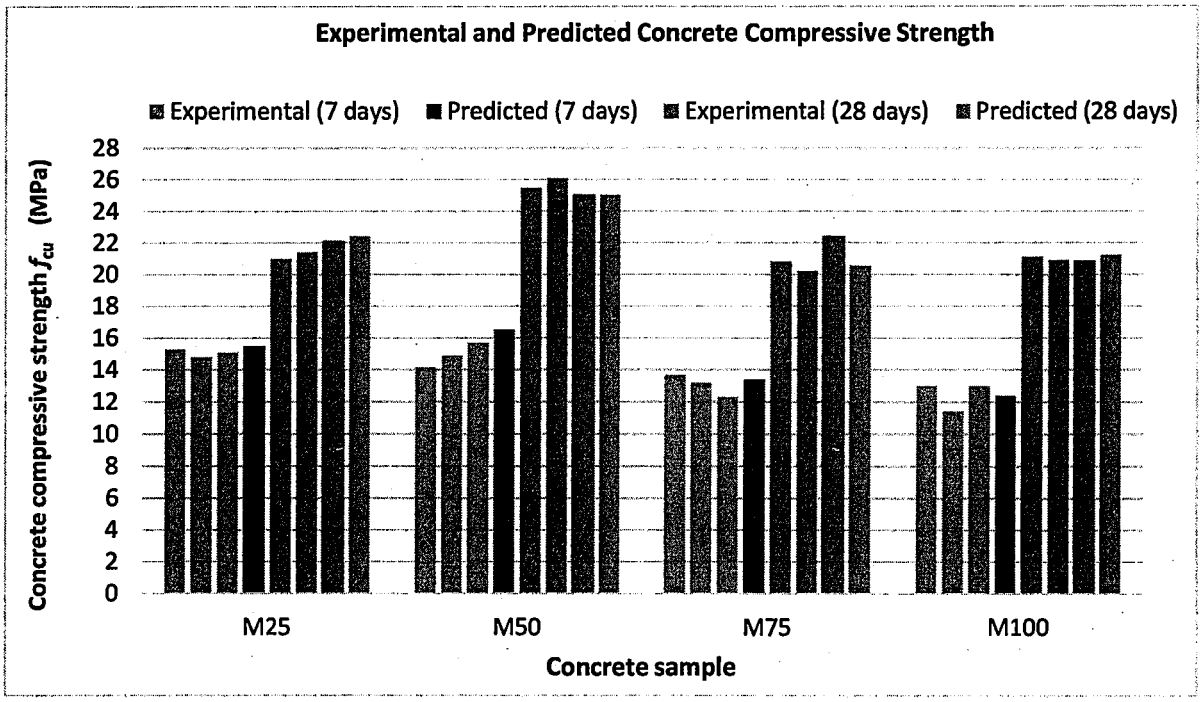

Fig. 7. Experimental and predicted concrete compressive strength for concrete samples at ages of 7 and 28 days.

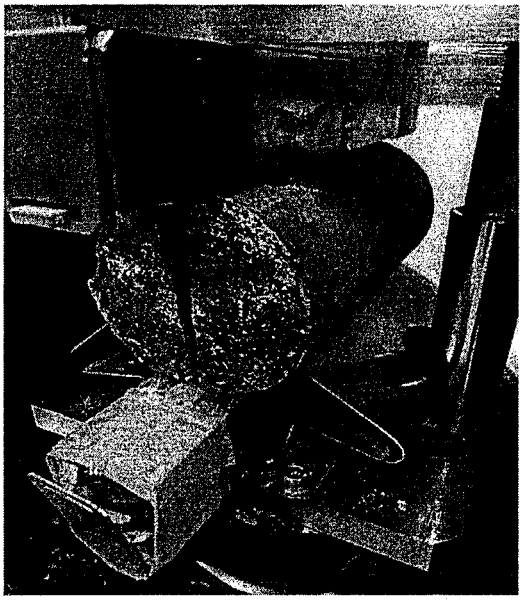

Fig. 8. Failure mode observed during the splitting tensile strength test.

Concrete sample	Splitting tensile strength (MPa) Average	%
C	2.60 ± 0.15	–
M25	2.57 ± 0.05	99%
M50	2.70 ± 0.41	104%
M75	2.10 ± 0.41	81%
M100	2.00 ± 0.47	77%

Table 5. Splitting tensile test results. *Percentage of the average tensile strength for the sample incorporating wash water compared to the tensile strength of the control sample.

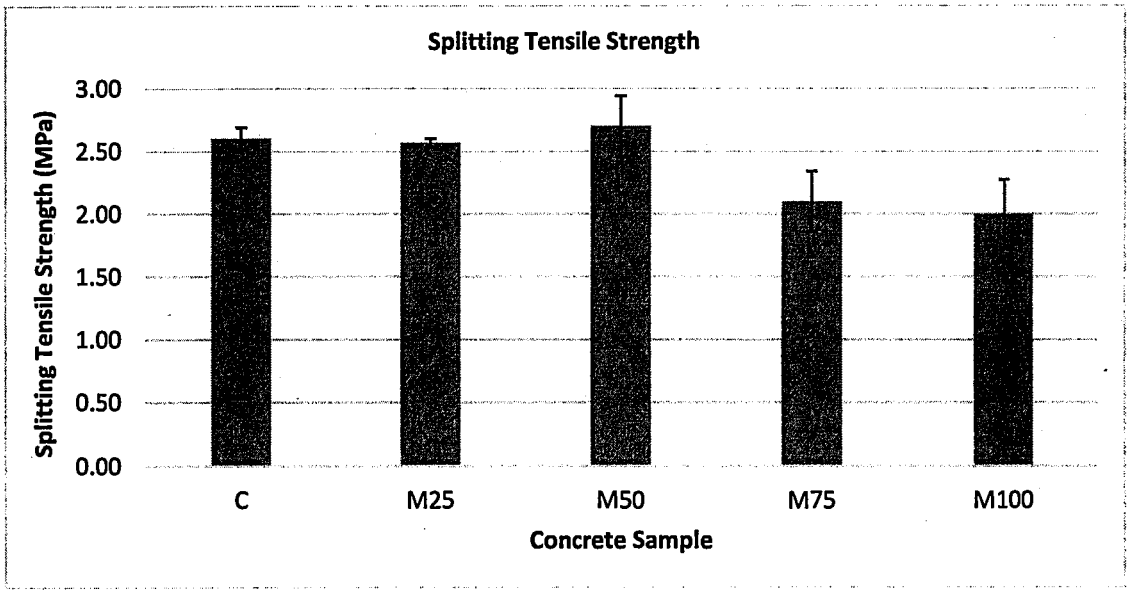

Fig. 9. Splitting tensile strength of the concrete mixes.

Concrete sample	Potential difference (ΔV) (mV)	Electrical resistivity (ρ) kΩ.cm
C	5	25
M25	6	36
M50	8	40
M75	15.5	78.5
M100	35	178

Table 6. Results of the electrical resistivity test.

aggregates, and increase the formation of voids and microcracks within the concrete matrix. Consequently, the concrete tensile strength is decreased due to the formation of weaker interfacial transition zones and greater susceptibility to cracking under tensile stress.

Electrical resistivity test

The electrical resistivity test conducted in this study evaluates the long-term durability and corrosion resistance of concrete mixes incorporating wash water. Unlike conventional durability tests, such as chloride penetration or half-cell potential methods, the electrical resistivity test is a rapid, non-destructive, and portable technique, requiring approximately one minute per measurement. This makes it suitable for both laboratory and on-site evaluation of concrete quality and corrosion potential.

The test was performed on saturated surface dry (SSD) specimens at 28 days of curing, and the corresponding results are presented in Table 6. A positive correlation was observed between the ratios of wash water used in the mixes and the measured electrical resistivity values compared to the control sample. Specifically, as the

wash water replacement ratio increased, both the potential difference (ΔV) and the electrical resistivity (ρ) of the concrete increased. The results indicate that electrical resistivity increased by approximately 44% and 60% for the mixes incorporating 25% and 50% wash water replacement, respectively, relative to the control mix. Furthermore, increasing the wash water replacement ratio to 75% and 100% led to resistivity values that are double and six times higher, respectively, compared to the control sample.

Although the wash water contains dissolved salts, the observed increase in electrical resistivity at higher replacement ratios can be attributed to pore structure refinement dominating over ionic conductivity effects. The presence of ultra-fine cementitious particles and hydration by-products in the treated wash water contributes to a micro-filler effect, partially blocking capillary pores and increasing pore tortuosity. This reduction in pore connectivity limits ionic mobility within the concrete matrix, resulting in higher electrical resistivity. Similar behaviour has been reported by Yao et al.[3] and Sandrolini et al.[22], who observed increased durability due to pore-filling effects of fine solids.

The increase in electrical resistivity with higher wash water content is favorable for corrosion resistance, particularly under saturated or aggressive exposure conditions. However, this improvement in durability coincides with a reduction in compressive strength, as discussed in Sect. 3.3. This can be explained by the dual effect of the salts and suspended solids present in the wash water. While fine particles may refine the pore structure and increase resistivity, excessive solids and chemical residues can disrupt normal cement hydration and weaken the interfacial transition zone, ultimately leading to reduced compressive strength. These findings are consistent with Gupta et al.[23]. They reported an increase in concrete density when using grey wastewater, attributed to the deposition of fine solids that partially fill pores and reduce permeability.

Furthermore, the treated wash water exhibited an elevated alkalinity (pH = 9.1), which contributes to maintaining a passive environment for embedded steel reinforcement, thereby reducing corrosion risk. Additionally, the chloride and sulfate concentrations were significantly below the threshold limits specified by ASTM C1602 and BS EN 1008, indicating a low likelihood of chloride-induced corrosion or sulfate attack. Therefore, the increase in electrical resistivity observed in this study is consistent with improved corrosion resistance under the investigated conditions.

Conclusions

In this study, an experimental programme was conducted to evaluate the effect of using wash water from ready-mix concrete plants as a sustainable alternative for the partial and full replacement of potable water in concrete production. The experimental programme included concrete mixes incorporating 25%, 50%, 75%, and 100% wash water replacement ratios. The influence of wash water on the fresh properties, mechanical performance, and durability of concrete was systematically investigated. Based on the results and analysis presented in this study, the following conclusions can be drawn:

- The treated wash water satisfied the chemical requirements of ASTM C1602, BS EN 1008, and ECP 203 for concrete mixing water. Its higher can enhance the corrosion resistance of steel reinforcement, provided that non-reactive aggregates are used to mitigate potential alkali–silica reaction risks.
- The incorporation of wash water resulted in a reduction in workability, with slump values decreasing by up to 50%. This reduction is attributed to fine suspended cementitious particles and dissolved solids, which increase the surface area of the mix and consequently the water demand. This reduction in workability can be effectively mitigated using suitable chemical admixtures.
- Compressive strength decreased with increasing wash water replacement ratio, with a maximum reduction of 18.3% at 28 days. However, concrete mixes incorporating up to 50% treated wash water met the strength requirements of BS EN 12,390 and ECP 203, indicating that 50% replacement can be considered a sustainable and safe alternative without compromising mechanical performance.
- Concrete mixes incorporating up to 50% wash water exhibited splitting tensile strengths comparable to the control mix, indicating no adverse effect on tensile strength. Higher replacement ratios of 75% and 100% resulted in a maximum tensile strength reduction of 23% compared to the control sample.
- Electrical resistivity increased consistently with wash water replacement, rising by 44% and 60% at 25% and 50% replacement levels, and by approximately two and six times at 75% and 100% replacement, respectively. This increase is attributed to the micro-filler effect of ultra fine cementitious particles in the treated wash water, which reduces pore connectivity and increases pore tortuosity. The observed trend indicates a potential improvement in corrosion resistance due to the refinement of the concrete pore structure.
- Empirical equations were developed and validated within the scope of this study to estimate compressive strength reduction as a function of wash water replacement ratio. These equations provide preliminary performance-based guidance for mix design but are limited to the material and replacement ranges investigated.
- Based on the experimental results, replacing up to 50% of potable mixing water with treated wash water can be implemented in ready-mix concrete plants without significant loss of mechanical performance while offering durability benefits. Practical implementation may be achieved through simple and cost-effective treatment measures such as sedimentation and basic filtration, combined with controlled blending and routine monitoring to ensure compliance with ASTM C1602 and BS EN 1008. This approach can reduce freshwater consumption, lower wastewater disposal costs, and support sustainability objectives without major modifications to existing batching infrastructure.

Limitations and recommendations for future work

- This study was limited to treated wash water obtained from a single ready-mix concrete plant; therefore, the results are applicable only within the investigated materials and operating conditions. Since wash water char-

acteristics may vary between plants, future studies should consider multiple sources to improve the general applicability of the findings
- Durability assessment was limited to electrical resistivity as a rapid, non-destructive indicator. Future research should include complementary durability indicators such as chloride migration and water permeability to enable a more comprehensive evaluation of long-term performance. Future studies should incorporate detailed physical characterization of wash water, including particle size distribution and turbidity, as well as advanced microstructural techniques such as SEM and XRD, to better elucidate hydration mechanisms and pore structure refinement.
- The proposed empirical equations for compressive strength prediction were developed within the scope of the present experimental dataset and are valid only for the investigated wash water replacement ratios. Further experimental studies involving different concrete compositions, wash water sources, and curing conditions are required to expand the dataset and support the development of generalized predictive models suitable for standardization.

Data availability
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code availability
Not applicable.

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Author contributions
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Declarations

Competing interests
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Tab 14

Tab 14

feature

Recycled Water in Ready Mixed Concrete Operations

By Colin Lobo
and Gary M. Mullings

Introduction

Process and storm water management at ready mixed concrete operations is a growing issue for the industry. As regulations and enforcement governing discharge from plant sites evolve, the option of reusing these sources of water will become a necessity, thus moving the industry toward zero-discharge facilities. It is important that positive terminology is used in describing the source of water and that the customer is informed of its use in a positive manner. In this article, the term *recycled* water will be used for mixer wash water, storm water or *gray water*. Concrete producers face the dichotomy whereby their customers are generally resistant to allowing the use of recycled water in their concrete while producers are forced to move in that direction because it's the environmentally responsible thing to do and there is a cost, sometimes unquantified, associated with its disposal. It's true that when moving toward zero discharge the producer has to make an investment in equipment, people and training, but in the relatively short term this investment will be recovered in a successful application. Producers who are leaders in environmental management initiatives have demonstrated this fact, without including cost of compliance and enforcement penalties.

The initial need for using recycled water in concrete came from California in the early 1970s due to evolving environmental regulations. NRMCA members collected data of water from typical sedimentation pits and the effects on concrete when this water was used as mixing water. Based on these evaluations, criteria were developed and in 1978, ASTM C 94, *Specification for Ready Mixed Concrete* was revised to permit the use of wash water as mixing water in concrete. State highway agencies for the most part still do not allow its use or if they do, their requirements are more conservative than C 94. The criteria or requirements for wash water in C 94 have not changed since they were originally incorporated in the standard. In the '70s, producers in California were looking for some relief to use some of their recycled water and reduce the quality of effluent from their production facilities and were not really striving for zero-discharge facilities. They retained the problem of cleaning out debris from sedimentation pits, handling it and disposing it in landfills. The industry's needs have changed and so should the standard to allow an increased use of wash water while protecting the consumer. Current technology better facilitates the collection of process and storm water with the associated solids, water treatment and automated measurement and batching.

ASTM C 94 has criteria for wash water that can be invoked at the option of the purchaser. While these are optional requirements, the uninitiated producer, relative to use of recycled water, should try to remain within these limits for any structural concrete or slab application. The requirements apply to the total mixing water in concrete and are essentially limits on the water chemistry for alkalis, sulfates and chlorides for reasons related to concrete durability. The other limiting criterion is the amount of total solids, which is limited to 50,000 parts per million (ppm) or 5 percent by mass of the total mixing water. This amounts to about 15 pounds of solids in 1 cubic yard of a typical concrete mixture. Does it matter if the solids added to the mix from recycled water exceed this limit? It depends on the concrete ingredients, characteristics of the recycled water, time of year and everything else that one could think of. The important issue is that the concrete meets the requirements of the job specification and the purchaser does not observe, or perceive, any diminished quality or batch-to-batch variation. It takes just one bad story to generate a negative perception and essentially kill any initiative to move forward on this important issue. ASTM committees have been deliberating for the last several years on revising the provisions for mixing water, and while the consensus process can be frustrating, it hopefully achieves a better standard that satisfies the producers and their customer.

This is a brief report of portions of

the research conducted at the NRMCA Alfred H. Smith Research Laboratory to answer some questions on reusing recycled water in concrete. The study was intended to simulate a practical situation where a producer has an environmental management system that includes a returned concrete reclaimer that generates recycled water slurry. The slurry is kept agitated in tanks and is used in a controlled manner as a portion or all of the batch water in concrete mixtures. An important point to note is that the characteristics of the slurry in this tank will be quite variable as water is removed and added to it from truck wash out during any production day. Figure 1 illustrates the variation of solids content with time from an actual recycled water holding tank. Adding this variable product without control is sure to cause batch-to-batch variations of concrete properties. It is imperative that the producer has a system in place that recognizes this variability and adjusts for it so that the customer does not see differences in concrete performance properties in subsequent loads of concrete.

The first phase of the study also includes a situation where a producer might use relatively clear water from a sedimentation pit after the solids have settled out. The reader is advised that the data and trends are very specific to the materials and conditions used in this study.

Procedures

The first phase of the NRMCA study was to quantify the basic effects of using recycled water on fresh and hardened concrete properties. A typical air-entrained portland cement concrete mix design without any admixtures was selected using stock materials from the research laboratory. The design mixture characteristics and proportions are provided in Table 1. The experimental variables used in Phase I of the study are listed in Table 2. Note that the solids contents of the recycled water, at 30 and 60 lb/yd^3, are at levels that are double and four times the current limit for solids in ASTM C 94. This series was replicated three times for a total of 48 concrete batches.

Table 1 – Design Proportions and Characteristics of Concrete

Portland Cement	600 lb/cu.yd
Mixing Water	300 lb/cu.yd.
Natural Sand	1,100 lb/cu.yd.
Limestone coarse aggregate, max. size 1 inch	1,800 lb/cu.yd.
Air content	4 to 6%
Slump	3 to 5 inches

Table 2 – Experimental variables in Phase I of the Study

Water	• Tap water (Control) • Clarified recycled water • Recycled water at 30 lb solids per cubic yard • Recycled water at 60 lb solids per cubic yard
Age of slurry	• 4 ± 1 hour • 1 day • 3 days • 9 days

Recycled water

A concrete mixture was mixed in a 1 cubic foot mixer, tempered with water to a very high slump and water slurry was decanted over a 150 µm (No. 100 sieve). The water slurry passing the sieve was captured in a five-gallon bucket and represented the wash water from the mixer. This wash water was kept agitated using a motorized paddle to keep the solids in suspension for the duration of the testing. The water slurry solids content varied from about 40 percent solids by mass to about 25 percent toward the end of the series at nine days as it was periodically diluted to maintain a sufficient volume for the tests. A portion of the recycled water was allowed to stand for about two hours and clear water was siphoned off the top to represent clarified recycled water.

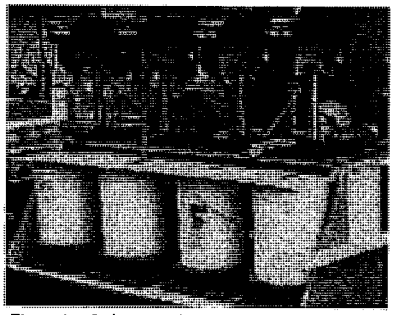


Figure 2 – Laboratory Set-up to Maintain Agitated Recycled Water Slurry

When concrete mixtures were made, samples of the recycled water slurry were obtained and the density was measured by determining the mass of water in a container of known volume. The water slurry sample was then dried to constant mass in a microwave oven to determine the percentage of solids by mass. At least two samples of recycled water were tested in this manner on each day and the average was used to establish the water slurry density and solids content. Solids were filtered out from the water slurry to measure the loss on ignition and specific gravity. This information is useful to quantify the progressing degree of hydration of cement in these solids. Loss on ignition is the loss in mass when an oven-dried sample is heated to 750°C. A portion of the solids was dissolved in acid to determine the insoluble residue. Since cementitious materials dissolve in acid, the insoluble residue represents the fine

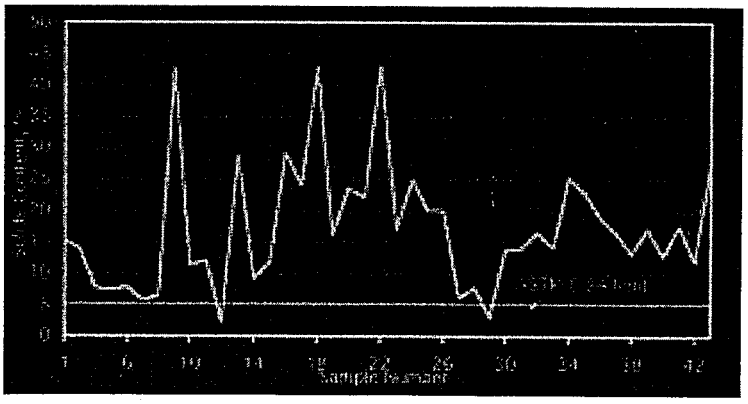


Figure 1 – Variation in Solids Content in Recycled Water. Courtesy: M.D.A. Thomas, U of New Brunswick

sand fraction, which was about 10 percent of the mass of the dry solids.

Concrete batches

On each day, four concrete batches with the four types of mixing water listed in the first row of Table 2 were mixed. The concrete batches were nominally 0.75 cubic foot size batches in a 1 cubic foot revolving drum laboratory mixer. Standard ASTM procedures were used to mix the concrete batches and to conduct the fresh and hardened concrete tests. To achieve the target solids contents in the mixing water, recycled water slurry with known solids content was diluted with a calculated quantity of tap water used. Clarified recycled water was used at 100 percent of the added water in those respective batches.

Testing

Concrete mixtures were mixed to a target slump of 5 inches. After the initial mixing for eight minutes, slump and density were measured. Air content (gravimetric) was calculated from the measured density. Concrete from these tests was returned to the mixer. The mixer was covered to prevent evaporation and the concrete was periodically agitated and retempered with water as necessary to retain the target five-inch slump until approximately 30 minutes after the ingredients were batched in the mixer. This was done to simulate a 30-minute delivery time of ready mixed concrete and what might typically occur in practice. It is important to note that the batches were adjusted to achieve a similar target slump and not to a constant water-cement ratio.

After the 30-minute period, the concrete was discharged into a sample container and the mass of discharged concrete was determined so that precise mixture proportions could be calculated.

Fresh concrete tests included slump, temperature and density. Initial setting time was measured by two methods. The first method was in accordance with ASTM C 403 by the penetration resistance on a wet-sieved mortar. On several batches, the heat evolution (or heat signature) of the concrete was measured to estimate the initial setting time. A 4 x 8-inch cast cylinder was placed in an insulated 5-gallon container. A thermocouple embedded in the center of the cylinder was connected to a data logger to obtain the rate of heat evolution of the concrete. A correlation was established between initial set from the C 403 method and a point on the heat signature curve. After some confidence was achieved with this correlation, set time was measured using the heat signature for the batches in the third round of replication.

Specimens for hardened concrete tests from each batch included four 4 x 8-inch cylindrical specimens for compressive strength determination at seven and 28 days; one 4 x 14-inch cylinder with embedded gage studs for drying shrinkage measurement; one 4 x 14-inch cylinder for freeze-thaw testing; and one 4 x 8-inch cylinder for rapid chloride permeability testing.

Results and Discussion

The results of three replicate batches for the same experimental condition were very reproducible and within typical batch-to-batch variation quantified for procedures used at the research laboratory. The average value of three replicates of each condition is reported in many cases in the subsequent discussion. Detailed data on calculated concrete mixture proportions, slump, temperature, air content and hardened concrete test results are available and are not reported here for the sake of brevity. Concrete temperatures were in the range of 70 to 75°F and air contents and slumps were at target levels within the acceptable tolerances.

Water Demand

Figure 3 illustrates the calculated mixing water content for all the batches at 30 minutes to achieve and maintain the target five-inch slump. The chart indicates that the mixing water content for the nine control batches was quite similar and averaged about 308 lb/yd^3. The chart also indicates the effects of using clarified recycled water and recycled water slurry to incorporate 30 and 60 lb/ solids per yd^3. The recycled water slurry was used at ages of four hours, one day, three days and nine days as indicated in Table 2.

When clarified water was used, the mixing water content was essentially similar to the control batches.

When recycled water slurries were incorporated to achieve the target solids content of 30 and 60 pounds, the mixing water demand to achieve and maintain the target slump increased. The increase is proportional to the amount of solids and the age of the recycled water slurry. With four-hour old slurries, the increase in mixing water was minimal, but as the slurry is aged past one day, a higher water demand is noticeable.

By monitoring the loss on ignition and specific gravity of the slurry solids, it was observed that the continued cement hydration with time causes the solids to get finer and of a lower specific gravity. These finer or *fluffier*

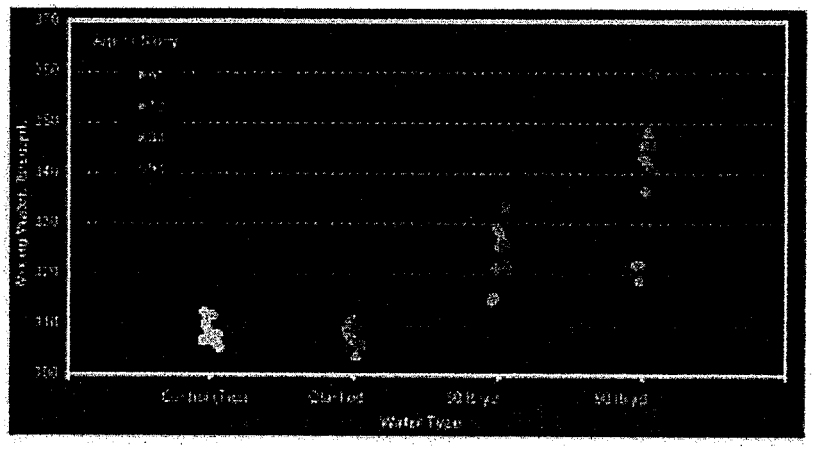
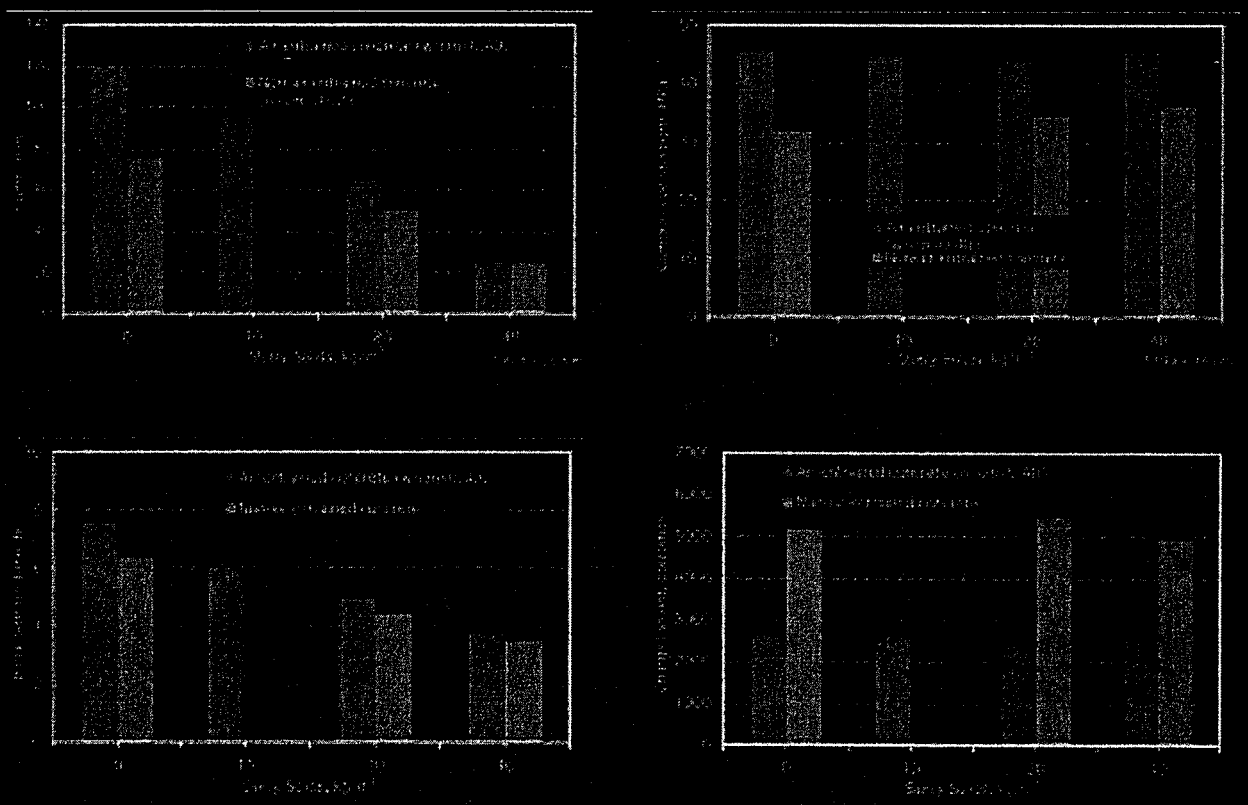


Figure 3 – Mixing Water Content for Individual Concrete Batches

Table 1. Experimental Variables

	Air entrained	Non-air entrained
Cement content, kg/m³ (lb/cu.yd.)	375 (630)	250 (420)
w/cm ratio	0.40	0.62
Solids from recycled water, kg/m³ (lb/cu.yd.)	• 0 (control) • 10 (17) • 20 (34) • 40 (67)	• 0 (control) • 20 (34) • 40 (67)



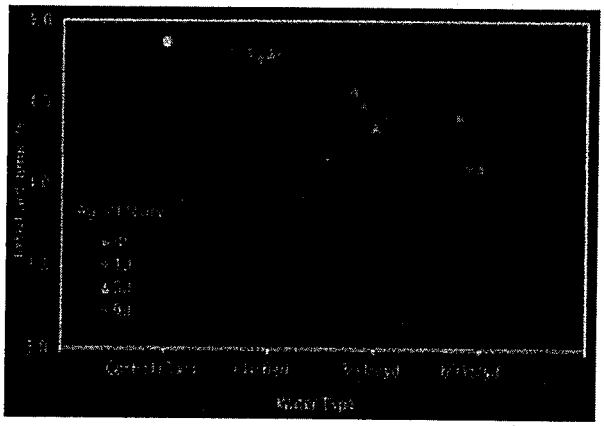


Figure 4: Initial Setting Time of Concrete

particles cause the increased water demand. Specific gravity of dried slurry solids varied from around 3.10 at four hours to 2.50 and lower at ages one day and later.

Initial Setting Time

Figure 4 illustrates the effects of using recycled water on initial setting time. Values reported are the average of three replicate batches for each condition. The setting time of the control is the average of nine concrete batches.

The initial setting time of the control batch was around 4.9 hours. The setting time of the batches with clarified recycled water was similar to that of the control batches. When recycled water slurry was used, the setting time was accelerated and the faster setting time was proportional to the amount of solids and the age of the water slurry.

The primary problem with reusing recycled water with solids in concrete is the effect on setting time. Hydrated cement and calcium hydroxide (hydrated lime) are known to accelerate setting characteristics. Problems with setting with the use of recycled water slurry will be exacerbated in summer but can possibly be used to advantage in cooler temperatures. These set time data illustrate that the four-hour old slurry had lesser effect on setting time than slurry that was aged for one day or longer. Setting times of concrete with slurries aged for one day or longer were essentially similar, possibly because most of the cement solids had hydrated at one day.

Compressive Strength

Figure 5 illustrates the 28-day compressive strength of concrete batches representing each experimental condition. The data represents the average of three replicate batches for each condition.

The compressive strength data reflects the well-known fact that increased water content in the concrete will cause a reduction in strength. The reduction in strength correlates well to the additional water used in the respective batches. The lower compressive strength of batches containing recycled water with higher solids content could be adjusted for by reducing the water content of these batches using appropriate mixture adjustments. (See Figure 5)

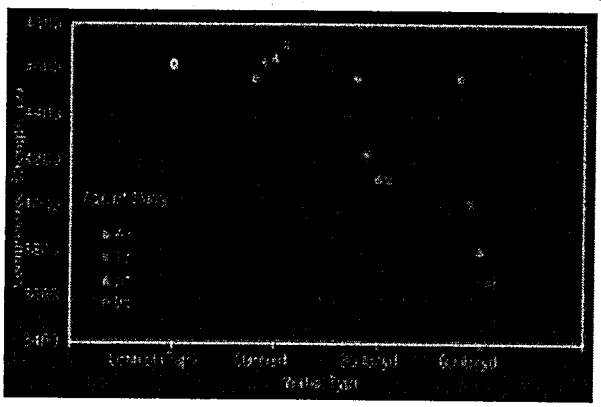


Figure 5: Compressive Strength at 28 days

The data also show that the batches with the four-hour-old slurry did have a compressive strength similar to the control batches, which is related to the lower mixing water demand and

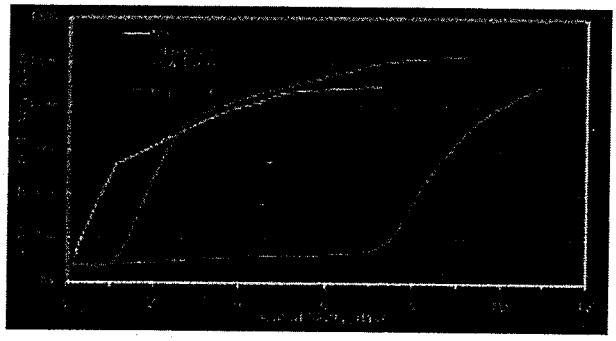


Figure 6 – The progression of hydration of the cement (effectiveness of the admixture dosage) was quantified from the loss on ignition on the dry solids from the slurries.

possibly some cementing value from unhydrated cement solids.

Durability Properties

Data on drying shrinkage, freeze-thaw resistance and rapid chloride permeability were collected and are not included or illustrated in this report. Mixtures that had a higher mixing water content had a concomitant increase in results for drying shrinkage and rapid chloride permeability. These higher values can be offset if appropriate steps are taken to reduce the mixing water content of those mixtures.

Freezing and thawing was conducted in accordance with Procedure A of ASTM C 666, which is the most severe exposure of freezing in water and thawing in water. The samples were exposed to in excess of 600 freeze-thaw cycles. Typical evaluations are conducted for 300 cycles. All the samples had adequate air contents and the durability factor for all conditions exceeded 90 percent when the tests were terminated. Typical failure criteria for freeze-thaw evaluations are when the durability factor falls below 80 percent in 300 cycles. The severe exposure of Procedure A caused scaling of the freeze-thaw specimens. Mass loss quantified to an average 2.5 percent of the original mass of the specimen. There was no distinct experimental condition that showed a higher level of scaling.

Phase II

With the observation that recycled water slurries used at four hours did not cause significant detrimental effects on mixing water demand and setting time, the second phase of the study was designed to evaluate whether the treatment of wash water with a hydration stabilizing admixture (HSA) could offset some of the negative effects with high solids recycled slurries observed in Phase I of the study. Phase II also included a condition where the mixing water using recycled water slurry was at the ASTM limit for solids content of 15 pounds per cubic yard.

The same concrete mix design and procedures were used for Phase II of the study. The details of the experimental conditions are listed in Table 3. The data was generated from two replications of the experimental series.

Table 3 – Experimental variables in Phase II of the Study

Water	• Tap water (Control) • Recycled water at 15 lb solids per cubic yard • Recycled water at 45 lb solids per cubic yard
HSA Treatment	• No admixture • Low Dosage (1.5 day protection) • High Dosage (8 day protection)
Age of slurry	• 4 ± 1 hour • 1 day • 7 days

In this phase of the study, the recycled water slurry was obtained in the same manner and placed in three separate containers. Two of these containers were dosed with the hydration stabilizing admixture at two hours after the initial contact of water with the cement. The two hours was chosen to simulate when a mixer truck might return to the plant and wash out with water that contained HSA.

The *Low* dosage was established from other tests to maintain the cement solids from hydrating about 1.5 day and the *High* dosage was established to keep the cement solids from hydrating for eight days. The progression of hydration of the cement (effectiveness of the admixture dosage) was quantified from the loss on ignition on the dry solids from the slurries. These results are illustrated in Figure 6. A low loss on ignition value corresponds to a low degree of hydration of cement. Data in Figure 6 are from the actual slurries used in the concrete batches.

Within ASTM C 94 Limits

Figures 7 and 8 illustrate the setting time and 28-day compressive strength of concrete, respectively, of concrete batches with solids content at the 50,000-ppm limit (or 15 lb/yd^3) of ASTM C 94. The slurry ages were four hours, one day and seven days. Mixing water requirements were 0 (at four hours) to 15 lbs/yd^3 higher than that of the control batches for target slump.

The data indicate that setting time (expressed as percent of control) and strength were similar to control, except for modest setting time acceleration

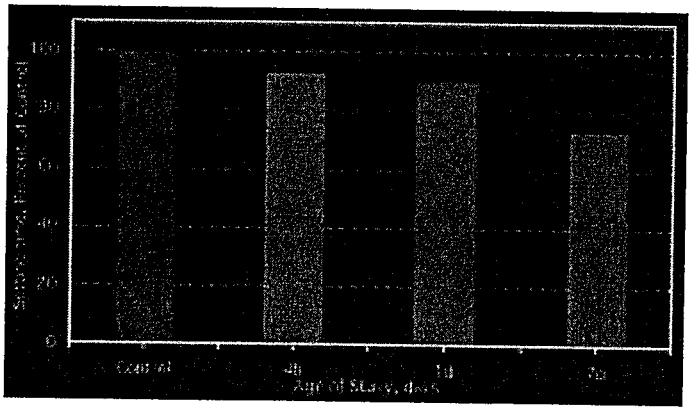


Figure 7 – Setting time of concrete batches with recycled water at the ASTM C 94 solids limit

Simple Procedures for Quality Control When Using Recycled Water

The primary criteria for *questionable* sources of mixing water in ASTM C 94 are for setting time and strength. When compared to using tap water (control), the setting time should not be accelerated by more than one hour or retarded by more than 90 minutes; and the seven-day strength should not be less than 90 percent of control. Test methods referenced in ASTM C 94 are those used for cement testing – ASTM C 109 standard mortar cube, and ASTM C 191 Vicat set. Equipment for these tests typically is not used in laboratories at concrete plants and a revision is being attempted to permit these tests on concrete samples with the same criteria.

While the solids content is the requirement in the standard, producers will typically measure the density (specific gravity) of recycled water slurry and establish blending percentages of slurry and tap (or well) water to meet a target density. A water slurry at 50,000 ppm correlates to a density of about 1.03 g/mL.

The following are recommended tests and procedures that can be used to determine blending percentages of recycled water slurry and tap water to comply with a limit on solids.

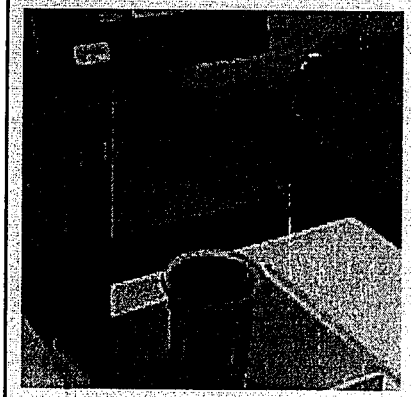


Figure 2.1 – Density measurement of water by mass

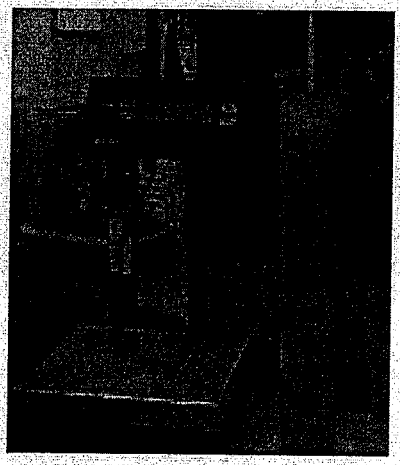


Figure 2.2 – Density measurement of water using a hydrometer

Density

The more accurate method is to determine the mass of recycled slurry water in container of known volume (Figure 2.1). Another common procedure is the use of a hydrometer (Figure 2.2). This is less accurate as the solids tend to settle rapidly.

To determine the density, use a cylindrical container with a glass or Plexiglas plate that fits over it. Calibrate the volume of the container in accordance with procedures used for calibrating air or unit weight buckets, as in ASTM C 29.

Obtain the mass of the empty container and plate.

Take a representative sample of recycled slurry water from the pit and fill it in the container. Cover the container with the plate ensuring that there are no air bubbles in the container. Wipe the outside dry and obtain the mass. The density is the net mass of water in the container divided by its volume.

The operator might also obtain hydrometer readings on a separate sample of recycled water slurry at the same time and this will serve as calibration for the density measurement if the hydrometer will be used during production.

Solids content

The quickest way is to dry a sample of recycled water slurry in a microwave oven (Figure 2.3). Use a glass dish with fiberglass cloth (check at boat repair shop). Obtain the empty mass of the dish and the cloth.

Pour the recycled water slurry sample from the density measurement into the glass dish and cover with the fiberglass cloth to prevent loss of solids during drying.

Figure 2.3 – Determining solids content in a microwave oven

Place the dish in a microwave oven and dry it until all the water has evaporated. Determine the mass of the dish until two subsequent weighings do not change by much (0.5 g). The percentage of solids in the recycled water slurry can now be calculated. Convert percent solids to ppm by multiplying by 10,000.

Develop a correlation

Make these measurements on recycled water slurry on several days to cover the range of solids contents that will be anticipated at a production facility. Add to this data with periodic

tests on the recycled water slurry. Establish a linear relationship (for simplicity) between the slurry density and the solids content (see Figure 2.4). Based on target density of the mixing water, one can calculate the blending percentages.

Example

Figure 2.4 illustrates a sample relationship of recycled water density and solids content in ppm. This relationship holds only for this particular concrete plant. A spreadsheet and graphing software (like MS Excel) can be used to plot this relationship and obtain an equation.

In this example the relationship between the solids content and the density is as follows:

Solids content, ppm = 1356495 (Density) – 1348016

If the density of the slurry on a particular day is 1.10, using this equation, the solids content is approximately 144,000 ppm.

To determine blending percentage of this recycled water slurry and tap water (assume density of 1.00 and total dissolved solids of 2000 ppm for simplicity), for a target solids content, the following relationship can be used:

$RW \times S_{RW} + (1 - RW) \times S_{TW} = TS$

Where:

RW = Recycled slurry water
TW = Tap water = (1-RW)
S_{RW} = Solids content of recycled slurry water
S_{TW} = Solids content of tap water
TS = Target solids content (limit) in mixing water

The percent recycled slurry water can be calculated by rearranging the previous equation:

$$RW = \frac{(TS - S_{TW})}{(S_{RW} - S_{TW})}$$

If the target solids content is the ASTM C 94 limit or 50,000 ppm, the percentage recycled water slurry to blend with tap water in this example will be:

$$RW = \frac{(50{,}000 - 2000)}{(144{,}000 - 2000)} = 34\%$$

The same equation can be used if the preference is to work with water density, where the respective water density replaces the solids content.

Blending recycled water slurry and tap water is frequently done with in-line water density gages and automated adjustments. Ensure that the software is doing these calculations accurately and calibrate these density gages using the simple procedures described here. The producer should check the density of recycled water at a minimum frequency of two per day. When mixing water is used at a higher solids content, there are other adjustments necessary to batch ingredients to compensate for the water and solids in the recycled water slurry and to establish more accurate mixture proportions and water-cement ratio. The producer should also document strength and setting time data to provide to the customer on request. ■

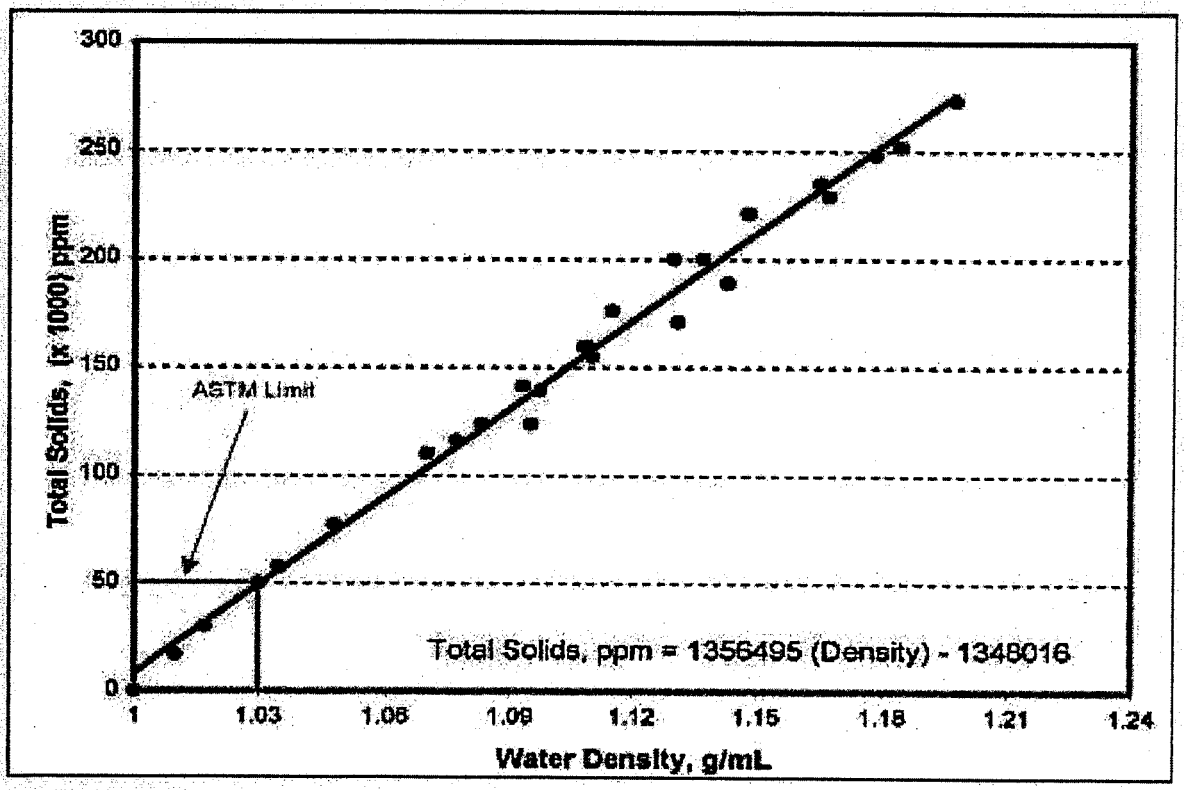


Figure 2.4 – Correlation between density and solids content for recycled water slurry

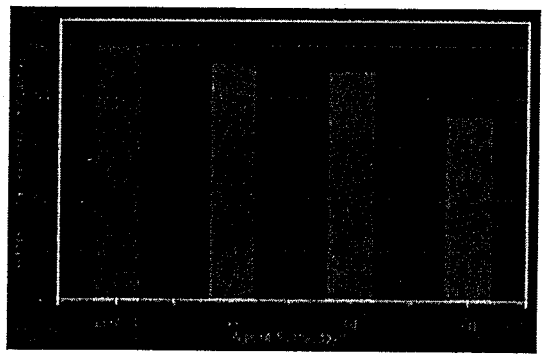


Figure 8 – 28-day compressive strength for concrete batches with recycled water at the ASTM C 94 solids limit

and lower strength for the batches with the seven-day-old slurry. These deviations from control for concrete with the four-hour and one-day-old slurries are within permissible limits for water in ASTM C 94.

HSA Treated Slurries

Figures 9 and 10 illustrate selected data for setting time and 28-day compressive strength of concrete, respectively, of concrete batches with and without slurries treated with the HSA admixture. The concrete batches used recycled water slurries such that 45 pounds of solids per cubic yard were incorporated in the batches. As expected from Phase I, the batches with the untreated slurries had a higher mixing water requirement to achieve the target slump and an associated reduction in strength is noted. Setting time of these batches, was accelerated relative to the control batches.

In the batches that had the slurry with the *Low* dose of HSA, the setting time and strength with the one-day-old treated slurries were similar to control batches, but the same negative effects were observed when this slurry was used at an age of seven days. Recall that the HSA dosage was selected to prevent cement hydration for about one day.

In batches with the slurry treated with the *High* dose of HSA, the setting time and strength of batches using the seven-day-old treated recycled water slurry were similar to that of the control batches.

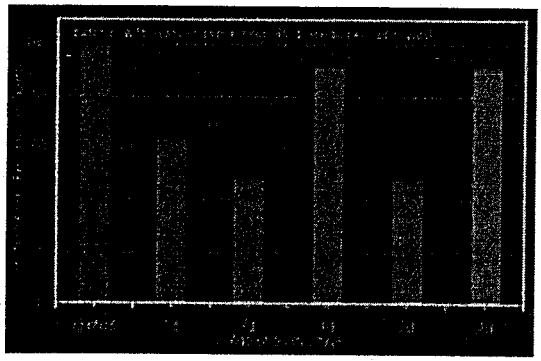
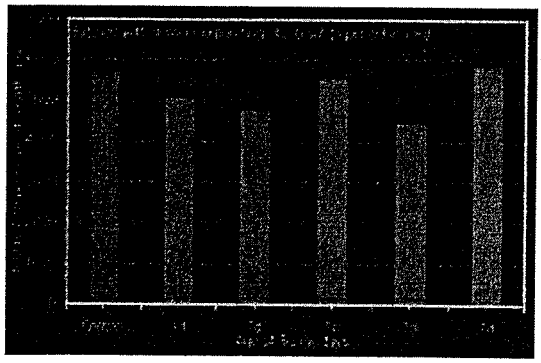


Figure 9 - Setting time of concrete batches with HSA treated and untreated recycled water at 45 pound solids per cubic yard

Figure 10 – 28-day Compressive Strength of concrete batches with HSA treated and untreated recycled water at 45 pound solids per cubic yard



These data illustrate that hydration stabilizing admixtures can work to facilitate the use of recycled water slurries at solids content that exceed the current limits of ASTM C 94.

Achieving this state will require some capital expense and company commitment. For this option to be economically viable, the goal should be to establish a mass balance such that the volume of recycled water generated at a concrete production facility is completely used in a defined period. The economics will need to consider the market area of operation and the cost of regulatory compliance. There are many examples in Japan, Europe, Canada and the U.S. where these types of systems are being successfully used.

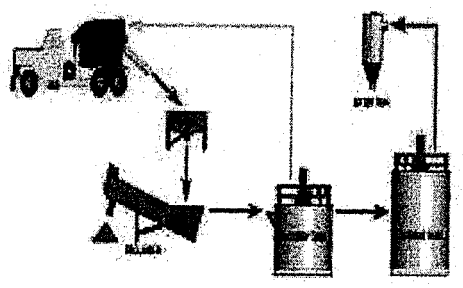


Figure 11 – Schematic of HSA treated concrete wash out system Courtesy: Knelson Concrete Recovery System

Another option for the producer is to maintain a certain consistency of the recycled water solids in consecutive batches while ensuring that it meets job performance requirements. Some reclaimer manufacturers will install a separate feed tank. When recycled water reaches a certain solids content, it is diverted to this feed tank and this water is used as batch water. This tank now has a constant solids content and can be used in fixed quantities to maintain batch-to-batch consistency.

Conclusions

These conclusions are pertinent to the materials and conditions used in this research study. These observations are based on mixing concrete to a target slump. The associated effects on concrete properties, except for setting time, were primarily a result of the additional mixing water needed to achieve and maintain the target slump of five inches.

1. Using recycled water with a solids content at or less than the ASTM C 94 limit should comply with the mixing water criteria for strength and setting time in the standard. However, recycled water aged to seven days seemed to have marginally detrimental effects in this study.
2. Performance properties of concrete batches with clarified recycled water were similar to the control batches. The data from this study indicates that the use of clarified water should be able to comply with the mixing water criteria in ASTM C 94.
3. Using recycled water slurries at signifi-

cantly higher than the ASTM C 94 limit for solids resulted in increased mixing water demand and accelerated setting time. The effects were more pronounced with an increase in the age of the slurry past one day and an increase in the solids content.

4. At the higher solids content, four-hour-old slurries had a minimal effect on the setting time and water demand of the concrete mixtures. Setting time and strength for these batches were similar to control. This indicates that hydrated cement in the slurry solids at later ages is the primary reason for the negative effects on water demand and setting time.
5. Mixtures that had a higher water content due to the use of higher solids recycled slurry had an associated reduction in strength and increase in drying shrinkage and rapid chloride permeability results.
6. Freeze thaw results of all concretes in this study were acceptable, indicating that when recycled water is used, attaining adequate air entrainment and strength will provide durable concrete in freeze-thaw environments.
7. Results of this laboratory study indicate that hydration stabilizing admixtures can be used to overcome the negative effects of age and higher solids content in recycled mixing water. ■

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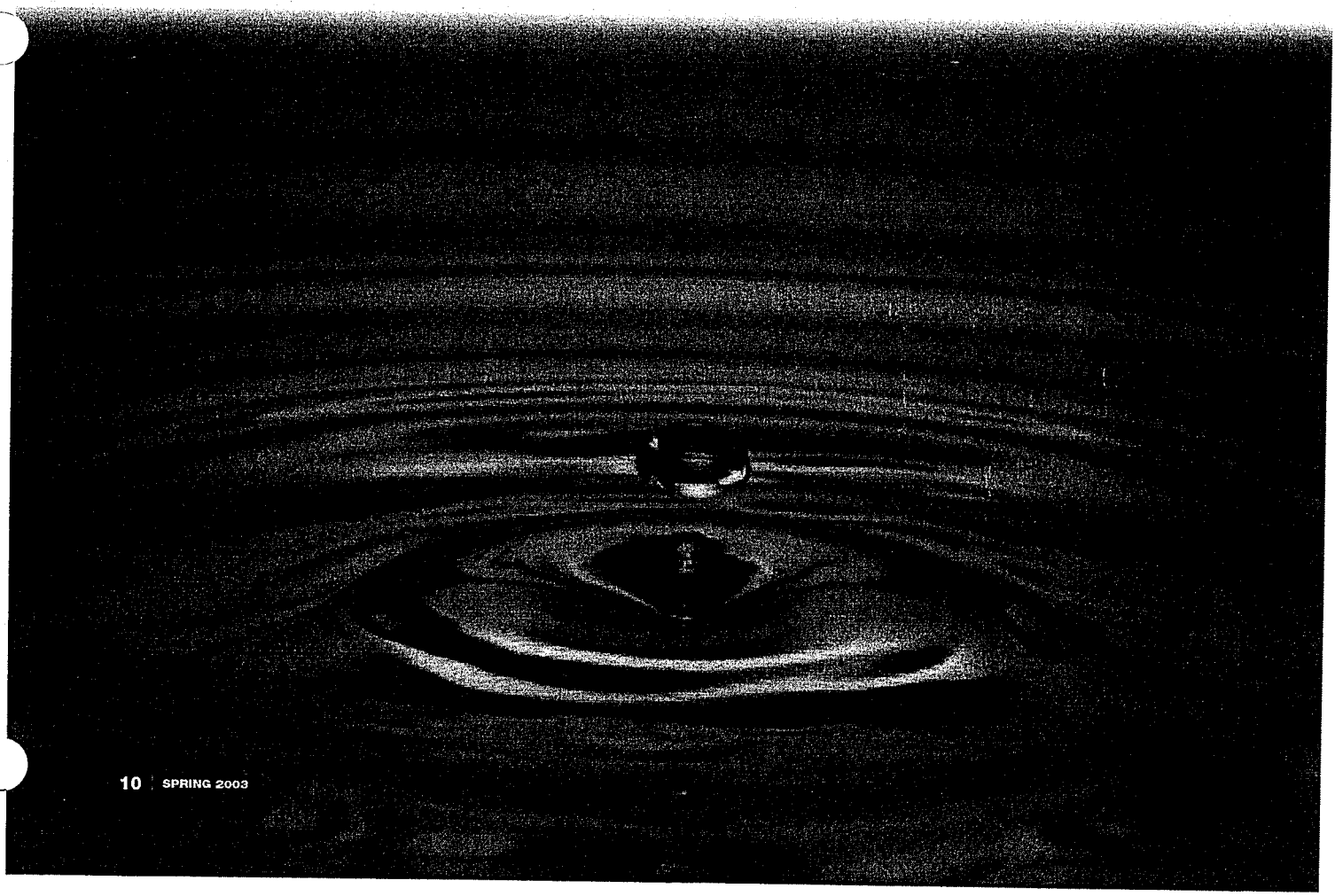
Acknowledgements

This research study would not have been possible without the planning and dedication of Richard D. Gaynor, previously executive vice president at NRMCA and NAA, and the assistance of Soliman Ben-Barka, senior lab technician at the AH Smith Research Lab. The financial and technical assistance of the following is also gratefully acknowledged: Portland Cement Association; Grace Construction Products; Master Builders; Holnam, Inc. (now Holcim); Transit Mix Concrete, Colorado Springs, CO; Boral Materials; The Aberdeen Group (now Hanley-Wood) and Cadman.



Tab 15

Tab 15

strategic mining solutions
brian@miningstrategy.com

1910 ROUTE 9 CLIFTON PARK LLC

Concrete Batch Plant

Towns of Clifton Park and Halfmoon, Saratoga County, New York

Noise Impact Assessment

September 25, 2025

Prepared for: Town of Clifton Park

Submitted by: Mr. Luke Clemente
1910 Route 9 Clifton Park, LLC

Prepared by: Brian Milliman, Owner
Strategic Mining Solutions LLC
brian@miningstrategy.com

1.0 INTRODUCTION

This report assesses potential noise impacts associated with the proposed 1910 Route 9 Clifton Park, LLC "the Applicant" concrete batch plant. The Noise Impact Assessment was prepared in accordance with the guidance established in the NYSDEC Program Policy: Assessing and Mitigating Impacts, issued on October 6, 2000, and revised on February 2, 2001.

The proposed concrete batch plant is located approximately 500 feet west of US Route 9 and 250 feet north of the intersection of US Route 9 and Roberts Lane in the Towns of Clifton Park and Halfmoon, Saratoga County. Current access to the property is via an existing driveway off US Route 9.

2.0 NOISE BACKGROUND

Noise is defined by the New York State Department of Environmental Conservation's Program Policy: Assessing and Mitigating Noise Impacts as: "...any loud, discordant or disagreeable sound or sounds. More commonly, in the environmental context, noise is defined simply as unwanted sound."

Audible sound is a physical phenomenon that results when a sound source vibrates in the air at frequencies that the human ear can perceive. Sound travels as longitudinal, or compressional, waves through the air or other media that creates a fluctuation in the atmospheric pressure within the propagating media. These fluctuations in pressure are the sounds that are heard by the human ear. Sound is characterized by several variables including sound pressure level and frequency.

2.1 SOUND PRESSURE

Sound pressure describes the loudness, or intensity, of sound and is measured in Pascals (PA) and commonly expressed in decibels (dB) where:

$$dB = 20 \log_{10}(P/P_{ref})$$

Where: P is the sound pressure in pascals

P_{ref} is the reference sound pressure of $2x10^{-5}$ pascals

The decibel scale is logarithmic because the range of sound intensities that the human ear can detect is so large. Specifically, painful sound is roughly 10 million times greater in sound pressure than the lease audible sound. When expressed logarithmically this range of ten million pascals equates to a range of approximately 140 decibels. The following figure shows the sound levels of common noise sources.

Common Sound Levels	
Source	Sound Level in dB(A)
Carrier Jet Takeoff @ 50 feet	140
Loud Rock Band	130
Car Horn @ 3 feet	120
Chainsaw	110
Lawn Mower @ 3 feet	100
Heavy Truck @ 3 feet	90
Busy Urban Street	80
Automobile @ 50 feet	70
Conversation @ 3 feet	60
Quiet Residential Area	50
Library	40
Soft Whisper	30
Slight Rustling of Leaves	20
Broadcast Studio	10
Threshold of Hearing	0

Figure 1. Common Sound Levels

2.2 FREQUENCY

Frequency describes the pitch of sound and is measured in cycles per second, or hertz (Hz). Frequency is the rate at which a sound source vibrates, or makes the air vibrate. Most sounds are comprised of many different frequencies, each with varying intensity.

The range of human hearing is limited to those frequencies between 20 to 20,000 Hz, although it is fairly common for people who are over 25 years of age to not be able to hear frequencies above 15,000 Hz. Sound with frequencies below 20 Hz is referred to as

infrasound and sound with frequencies greater than the upper limit of the human hearing range is referred to as ultrasound.

The following figure illustrates the range of frequencies of common sounds.

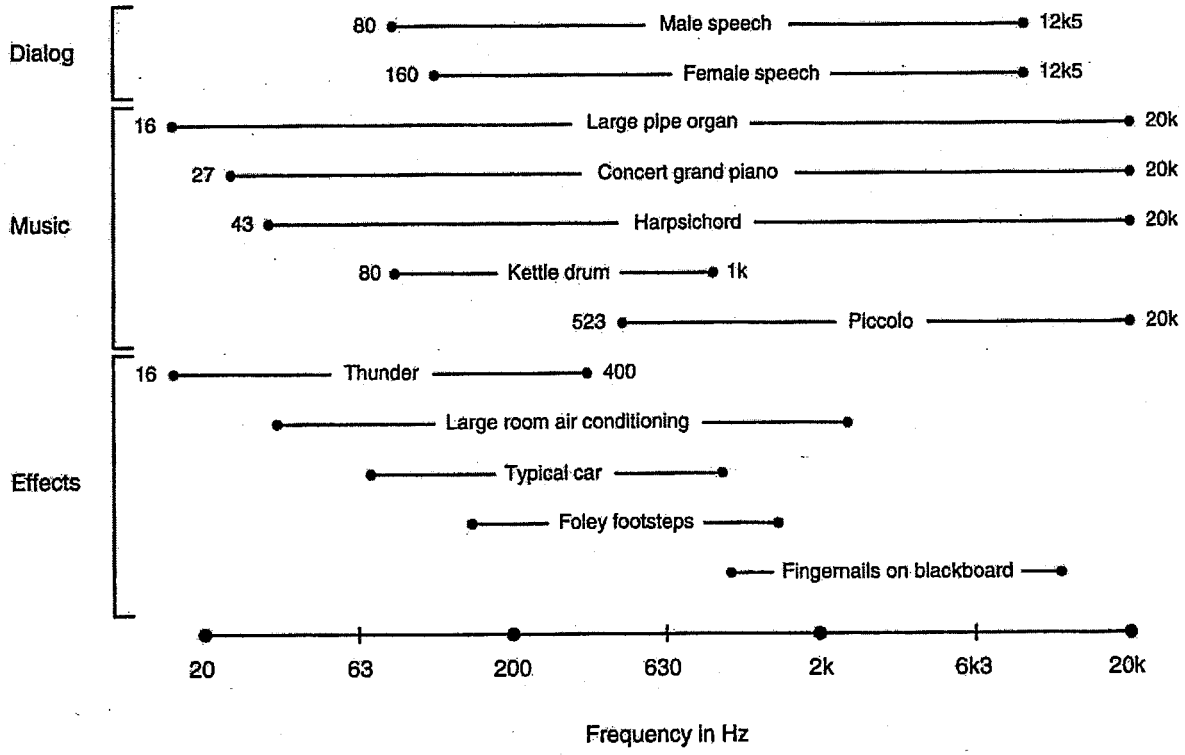


Figure 2. Frequency Range of Common Sounds

The range of frequencies that make up sounds dictates how sound reacts with the environment and how we perceive that sound. For example, lower frequency sounds, like bass from a car stereo, is affected less by barriers and vegetation than higher frequency sounds. Human hearing, on the other hand, is most sensitive to higher frequency sounds, with the maximum sensitivity at around 2000 Hertz. The sensitivity of the human ear to frequency gradually falls off at lower and higher frequencies. In order to account for human perception of sound pressure levels at different frequencies, weighting filters are applied when measuring sound. A sound level that has been weighted for the human ear is referred to as "A-weighted" and is denoted as dB(A) or dBA.

To accurately calculate how a noise source at point A will sound at point B, the frequency spectrum that comprises that sound needs to be quantified to determine how that sound interacts with the environment and how it is perceived by the human ear. For

environmental assessment purposes, the range of audible frequencies can be divided into ten groups, referred to as Center Octave Bands. Each center octave band can be further divided into three additional sub-groups called 1/3 Octave Bands. Each Center Octave Band consists of a range of frequencies whose upper limit is twice the lower frequency limit.

The following figure illustrates the standard 1/3 and Center Octave Band ranges and the A-weighting adjustment factor for each range.

Octave Bands		
1/3 Octave Band (Hz)	Center Octave Band (Hz)	A- Weighting Adjustment (dB)
25		-44.7
31.5	31.5	-39.4
40		-34.6
50		-30.2
63	63	-26.2
80		-22.5
100		-19.1
125	125	-16.1
160		-13.4
200		-10.9
250	250	-8.6
315		-6.6
400		-4.8
500	500	-3.2
630		-1.9
800		-0.8
1,000	1000	0.0
1,250		+0.6
1,600		+1.0
2,000	2000	+1.2
2,500		+1.3
3,150		+1.2
4,000	4000	+1.0
5,000		+0.5
6,300		-0.1
8,000	8000	-1.1
10,000		-2.5
12,500		-4.3
16,000	16000	-6.6
20,000		-9.3

Figure 3. Octave Band Frequencies and A-Weighting Adjustment Factors

4.2 Noise Impact Assessment

The noise impact assessment was conducted using a worst-case approach using the loudest measured concrete batch plant sound levels. Actual sound levels will be much less than modeled because:

- Concrete batch plants typically operate intermittently based on local construction demand, which varies seasonally.
- The loudest side of the plant (where the cement blowers will be operating) will be facing east, toward the highway.

The following table summarizes the assessment for Receptors R1, R2 and R3.

		Receptor Location		
Scenario		R1	R2	R3
(CP) Concrete Batch Plant, Cement Blower, Loader and Mixer Trucks Getting Loaded	Concrete Batch Plant Sound Level at 50'	89.3 dB(A)	89.3 dB(A)	89.3 dB(A)
	Receptor Distance	567 feet	568 feet	1,907 feet
	Distance Attenuation	21.1 dB	21.1 dB	31.6 dB
	Attenuation Due to Barriers and Vegetation	0 dB[9]	2.7 dB[9]	5.0 dB[9]
	Atmospheric Absorption (Minimum)[10]	0.9 dB min.[9]	0.9 dB min.[9]	2.1 dB min.[9]
	Ground Attenuation (Not Used)	0 dB	0 dB	0 dB
Calculated Sound Level at Receptor		67.3 dB(A)	64.6 dB(A)	50.6 dB(A)
Ambient Sound Level at Receptor		67.8 dB(A)	67.8 dB(A)	67.8 dB(A)
Difference From Ambient		-0.5 dBA	-3.2 dBA	-17.2 dBA

Table 3. Noise Impact Assessment

[9] Varies by frequency.

[10] See section 2.4.3 for methodology.

4.3 Noise Impact Analysis and Conclusion

In accordance with the NYSDEC Program Policy: Assessing and Mitigating Noise Impacts, no further analysis is necessary when it is demonstrated that potential sound level increases are less than 6 dBA[11] above the ambient sound levels.

Using a conservative methodology, the sound level of the proposed plant at all nearby commercial and residential receptors is calculated to be less than the existing ambient sound level. Actual sound levels of the plant will be even less than what is presented here due to additional factors not considered in the analysis, including: the directionality of the mobile equipment, cycle times of the plant and equipment, and additional attenuation from soft ground.

Using a worst-case scenario and conservative methodology[12], this Noise Impact Assessment determined that the sound level of the concrete batch plant at receptor locations R1, R2 and R3 is well below the threshold for impact, and no further analysis is required.

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[11] NYSDEC Program Policy: Assessing and Mitigating Impacts, page 14.

[12] Only the loudest directional equipment sound levels were used in the calculations. All equipment noise sources were modeled from 10 feet above the ground surface. All receptor locations were assumed to be 6 feet above the ground surface. Attenuation due to vegetation was limited to 15 dB to account for overtopping at distance. Ground attenuation was not calculated or used for impact determination in order to be conservative.

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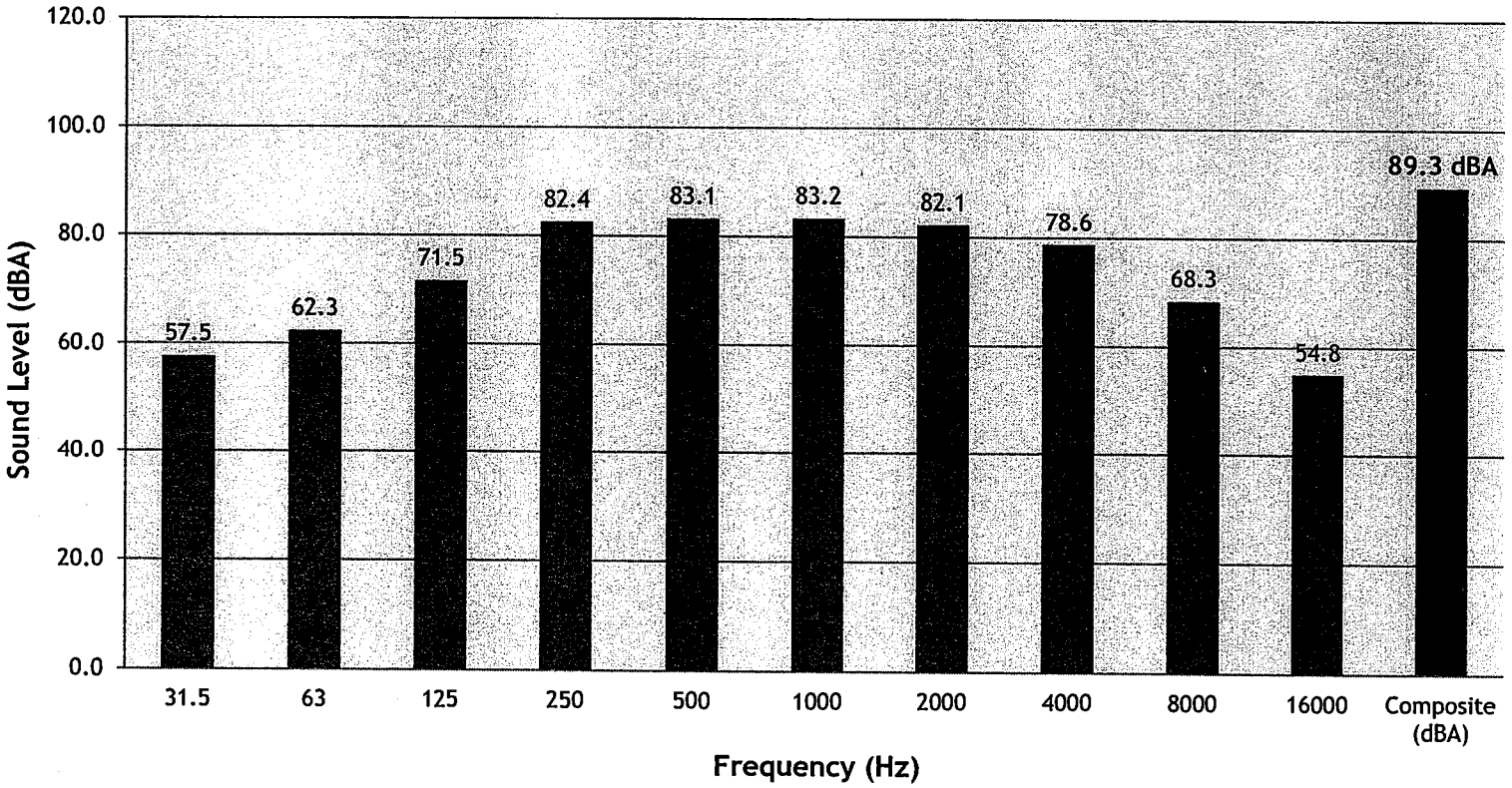
1910 Route 9 Clifton Park LLC — Operating Concrete Plant, Lowest — Scenario: CP
Concrete Batch Plant — Atmospheric Attenuation — Receptor: R1
Equipment: Concrete Plant, Cement Pump, Loader and Mixer Trucks

Equipment Octave Band Sound Level (dBA) at 50 Feet



September 2025

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Tab 16

Tab 16

October 21, 2025

Mr. Luke Clemente
Clemente Group LTD
PO Box 171
Watervliet, NY 12189

RE: Traffic Assessment, Highland Batch Plant, US Route 9W, Town of Lloyd, Ulster County, New York; CM Project No. R251377.00

Dear Mr. Clemente:

Creighton Manning Engineering & Surveying, PLLC (CM) has conducted a traffic assessment for the construction of a proposed batch concrete plant development located 3260 Route 9W in the Hamlet of Highland. This assessment is based on information provided in the "Site Plan" prepared by *Control Point Associates, Inc. PC,* dated April 18, 2025 (see Attachment A).

1.0 Project Description and Existing Conditions

The project consists of the construction of various manufacturing structures including the main concrete batch plant building, a conveyor, and material bins on the east side of US Route 9W. The construction season occurs from March 15th to December 15th. The facility will be open from approximately 5:00 a.m. to 6:00 p.m. during the week and from 6:00 a.m. to 1:00 p.m. on Saturday. The existing parcel currently accommodates the *Aldo's Automotive Precision Machine Ltd* business one fabrication building. Access to the parcel is currently provided via two curb cuts located approximately 0.55 miles north of the US Route 9W/Red Top Road/N. Riverside Road intersection. It is anticipated that the proposed development will be fully built and occupied by 2026. The project location is shown on Figure 1.

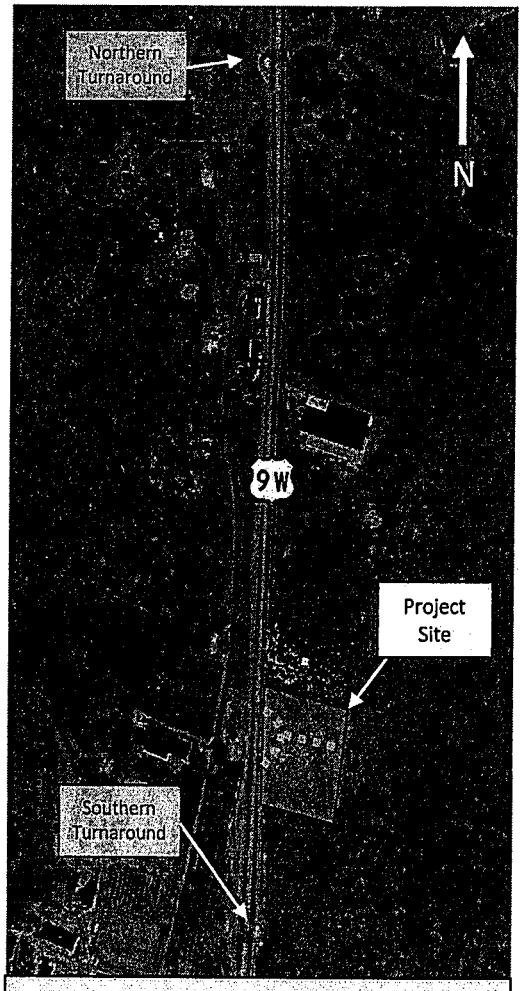


Figure 1 – Project Location

US Route 9W is classified as an urban principal arterial other adjacent to the project site that is on the National Highway System (NHS). This roadway includes two, 11-foot wide travel lanes in each direction, an 8-foot wide median with a guiderail, and 4 to 6-foot wide paved shoulders. US Route 9W travels in a north-south direction through the Town of Llyod. The posted speed limit is 55-mph near the site and land uses along the roadway generally consist of other manufacturing/warehousing uses and commercial uses.

A review of the existing curb cuts on US Route 9W indicates that only right-turns in and out are permitted due to the median and guiderail; however, a review of US Route 9W indicates that there are "turnarounds" located approximately 2,850-feet north and 750-feet south of the site as shown on Figure 2 and Figure 3. Vehicles traveling south on US Route 9W that want to turn left into the site would pass the facility and use the

"Southern Turnaround" to make a U-turn in order to make a right-turn into the batch plant. In addition, vehicles that want to travel south on US Route 9W from the batch plant will make a right-turn from the site and use the "Northern Turnaround" in order to make a U-turn.

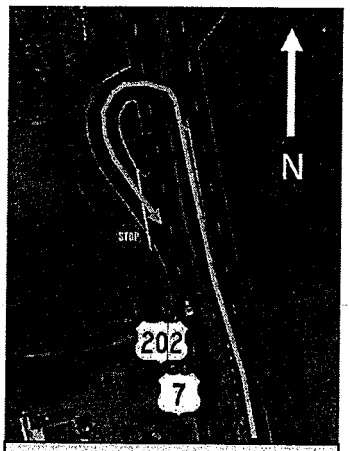


Figure 2 – Northern Turnaround

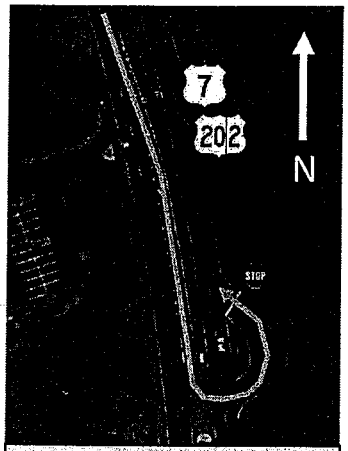


Figure 3 – Southern Turnaround

Automatic traffic recorder (ATR) data was collected on US Route 9W near the turnaround locations from Friday, September 6, 2025 through Thursday, September 18, 2025. The data indicates that on a typical weekday, US Route 9W currently serves approximately 6,280 vehicles per day (vpd) in the northbound direction and 6,245 vpd in the southbound direction. By comparison, US Route 9W serves approximately 5,400 vpd in the northbound direction and 5,370 vpd in the southbound direction on Saturday. In addition, an 85th percentile speed of 65-mph was recorded in the northbound direction while an 85th percentile speed of 62-mph was recorded in the southbound direction. Available gap data was also observed in both directions near the turnarounds. The raw traffic data is included under Attachment B.

2.0 Traffic Forecasts & Assessment

Site Generated Traffic

Trip generation determines the quantity of traffic expected to travel to/from a given site. The Institute of Transportation Engineers (ITE) *Trip Generation*, 12th edition, is the industry standard used for estimating trip generation for proposed land uses based on data collected at similar uses; however, given the unique nature of this development, site specific trip generation rates have been calculated based on counts at a similar existing batch plant located in the Town of Wilton, New York that is operated by the same Applicant. Table 1 summarizes operational information provided by the Applicant that reflects the maximum daily trips that could be generated by the existing *Wilton Bonded Concrete* plant and the proposed *Highland Batch Plant.*

Table 1– Daily Trip Generation Summary (Maximum Operations) – Estimated Trips provided by Applicant

Trip Type	Existing Wilton Bonded Concrete Daily Trips			Anticipated Highland Batch Plant Daily Trips			+/- %
	Enter	Exit	Total	Enter	Exit	Total	
Front Discharge Mixers - 8 mixer trucks for Wilton-5 daily trips each - 6 mixer tucks for Highland-5 daily trips each	40	40	80	30	30	60	-20%
Cement Deliveries (Tractor Trailers)	4	4	8	3	3	6	-25%
Aggregate Deliveries	13	13	26	11	11	22	-15%
Employees - 8 mixer drivers and 2 plant operators for Wilton - 6 mixer drivers and 2 plant operators for Highland	10	10	20	8	8	16	-20%
Miscellaneous Deliveries (Amazon, etc.)	2	2	4	2	2	4	0%
Total	69	69	138	54	54	108	-22%

Table 1 indicates that the *Wilton Bonded Concrete* plant can generate a maximum of 138 daily trips while it is anticipated that the proposed *Highland Batch Plant* will generate a maximum of 108 daily trips. This suggests that the proposed development will generate approximately 22% fewer trips over the course of the day compared to the existing concrete plant based on the size of the facilities.

A traffic count conducted at the driveway associated with the *Wilton Bonded Concrete* plant recorded entering and exiting traffic volumes on Tuesday, August 19, 2025. The AM peak hour occurred from 7:00 to 8:00 a.m. while the PM peak hour occurred from 4:00 to 5:00 p.m. The raw traffic data can be found under Attachment C. The count data indicates that this existing batch plant generates 23 trips during the AM peak hour (13 trips entering and 10 trips exiting) and 20 trips during the PM peak hour (9 trips entering and 11 trips exiting). Table 2 summarizes the anticipated AM and PM peak hour trip generation of the proposed *Highland Batch Plant* assuming it generates 22% fewer trips than the existing *Wilton Bonded Concrete* plant.

Table 2 – Highland Batch Plant Peak Hour Trip Generation Summary

Land Use		AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Proposed Highland Batch Plant	Passenger Cars	5	0	5	1	4	5
	Trucks	5	8	13	6	5	11
Total		10	8	18	7	9	16

The trip generation summary shown in Table 2 indicates that the proposed *Highland Batch Plant* will generate 18 AM peak hour trips and 16 PM peak hour trips if it operates similar to the existing *Wilton Bonded Concrete* plant.

Traffic Volume Conditions

Traffic generated by the proposed project was distributed onto the surrounding roadway network based on existing traffic data and probable travel routes. It is expected that approximately 50 percent of site generated traffic will travel to and from the south via US Route 9W while approximately 50 percent will travel to and from the north via US Route 9W. This distribution of traffic results in a maximum increase in traffic of approximately five (5) new vehicle trips during the AM and PM peak hours on any one approach to an intersection located near the project site.

The magnitude of the new vehicle trips generated by the site is less than the ITE threshold of 50 site-generated vehicles at a single intersection which would trigger the need for detailed intersection analysis as noted in the *Multimodal Transportation Impact Analysis for Site Development* (2023). This guidance was developed as a tool to identify locations where the magnitude of traffic generated has the potential to impact operations at off-site intersections and screen out locations from requiring detailed analysis that do not reach the 50-vehicle threshold and are unlikely to require mitigation. The anticipated traffic volumes for the *Highland Batch Plant* will be below the 50-vehicle threshold, indicating that detailed intersection analysis is not needed and that the site generated traffic will be accommodated by the existing roadway network.

3.0 Sight Distance

A sight distance evaluation was completed at the Site Driveways location on US Route 9W. Available *intersection* sight distance was measured from the perspective of a passenger car/combination truck looking left to exit the site. The available intersection sight distance should provide drivers a sufficient view of the intersecting roadway to allow passenger cars/combination trucks to enter or exit the intersection without excessively slowing vehicles traveling at or near the operating speed on the intersecting mainline.

Stopping sight distance was also measured on US Route 9W at the Site Driveway locations. Stopping sight distance is the length of the roadway ahead that is visible to the driver. The available stopping sight distance on a roadway should be of sufficient length to enable a passenger car/combination truck traveling at or near the operating speed to stop before reaching a stationary object in its path.

The sight distances measured in the field were compared to the guidelines presented in *A Policy on Geometric Design of Highways and Streets, 2018* published by the American Association of State Highway Transportation Officials (AASHTO) and the current New York State Department of Transportation (NYSDOT) design guidance presented in the *Highway Design Manual Chapter 5 and Chapter 7* (Appendix 5C and Exhibit 7-7) for the design speeds on US Route 9W of 65-mph in the northbound direction and 60-mph in the southbound direction. The results of the sight distance analysis are summarized in Table 3.

Table 3 – Sight Distance Summary (feet)

Intersection			Intersection Sight Distance[1]				Stopping Sight Distance[2]	
			Right-Turn from Site Driveway (D_R)	Left-Turn from Site Driveway		Left-Turn from US Route 9W (D_S)	SSD_{NB}	SSD_{SB}
				Looking Left (D_L)	Looking Right (D_R)			
US Route 9W/ North Site Driveway	Passenger Car	Available	>1,20	NA	NA	NA	>1,200	NA
		Recommended	625	765	710	575	645	570
	Combination Truck	Available	>1,200	NA	NA	NA	>1,200	NA
		Recommended	1,005	1,170	930	785	645	570
US Route 9W/ South Site Driveway	Passenger Car	Available	>1,100	NA	NA	NA	>1,200	NA
		Recommended	625	765	710	575	645	570
	Combination Truck	Available	>1,200	NA	NA	NA	>1,200	NA
		Recommended	1,005	1,170	930	785	645	570

XXX = Available Sight Distance

[1] Intersection sight distance is measured at 14.5 feet back from the travel way at an object height of 3.5 feet and an eye height of 3.5-feet for a passenger car and 7.5-feet for a combination truck.

[2] Stopping sight distance measured for a 2-foot object located in the path of northbound and southbound vehicles on US Route 9W at an eye height of 3.5-feet for a passenger car and 7.5-feet for a combination truck.

The intersection and stopping sight distance evaluation for a passenger car and a combination truck at the Site Driveway on US Route 9W indicates that all sight lines meet AASHTO guidelines for the applicable operating speeds. It is recommended that any site signing be placed a minimum of 15-feet back from the travel way (outside the sight triangle) and that the landscaping plan consider sight lines in order to maintain visibility at the Site Driveways.

4.0 Gap Analysis

A gap study was conducted to determine if adequate gaps exist in traffic on US Route 9W to allow passenger cars and trucks to use the turnarounds located north and south of the Site Driveways. This assessment focuses on the Wednesday, September 10, 25 data collected by the ATR as noted above which represents typical mid-week conditions. Gaps were measured in the flow of traffic traveling in both directions on US Route 9W for a typical weekday since volumes are higher during the week when compared to Saturday. The *Highway Capacity Manual* (HCM) provides the duration of critical gaps at an unsignalized intersection. The gaps measured in the field were then compared to the critical gaps required. Below is a summary of the gap study as it relates to the flow of traffic at both turnaround intersections on US Route 9W. It is noted that a "Left-Turn From a Minor Road" is not necessary due to the existing raised median.

Left Turn from US Route 9W onto the Northern and Southern Turnarounds – A minimum gap of 4.1 and 6.1 seconds is required in the flow of southbound traffic for a northbound passenger car and truck on US Route 9W to turn left onto the Turnaround intersections, respectively. It is anticipated that the site will generate a maximum of five (5) vehicles will turn left from US Route 9W to the Turnaround intersections during the peak periods evaluated. Table 4 summarizes the gaps available for left-turn traffic on US Route 9W.

Table 4 – Available Gaps for Left-Turn Traffic from US Route 9W to the Turnarounds

Time	Northern Turnaround				Southern Turnaround			
	Passenger Cars		Trucks		Passenger Cars		Trucks	
	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced
5:00 a.m.- 6:00 a.m.	72	758	68	495	74	748	71	488
6:00 a.m.- 7:00 a.m.	189	1,586	178	1,034	130	1,199	127	790
7:00 a.m.- 8:00 a.m.	160	669	125	395	255	998	200	573
8:00 a.m.- 9:00 a.m.	220	731	148	401	321	1,196	250	678
9:00 a.m.- 10:00 a.m.	206	924	170	540	340	1,341	249	744
10:00 a.m.- 11:00 a.m.	221	963	170	562	296	1,176	214	663
11:00 a.m.- 12:00 p.m.	210	974	154	557	304	1,264	238	722
12:00 p.m. - 1:00 p.m.	164	659	112	383	289	1,175	222	677
1:00 p.m. - 2:00 p.m.	166	726	126	408	328	1,398	268	816
2:00 p.m. - 3:00 p.m.	221	917	163	530	264	1,097	206	625
3:00 p.m. - 4:00 p.m.	235	928	158	528	296	1,203	239	682
4:00 p.m.- 5:00 p.m.	280	1,080	196	599	372	1,496	274	838
5:00 p.m.- 6:00 p.m.	254	950	181	551	295	1,220	231	708

The gap study demonstrates that the available gaps can theoretically accommodate a minimum of 659 passenger cars or 383 trucks at either Turnaround intersection during the peak hours (worst-case). This indicates that the available gaps can accommodate the number of passenger cars/trucks turning left onto the Turnarounds during the peak hours of operation for the batch plant.

Right-Turns from the Northern and Southern Turnarounds onto US Route 9W – A minimum gap of 6.9 to 8.9 seconds is required in the flow of northbound and southbound traffic for a passenger car and truck exiting the Turnaround intersections. to turn right onto US Route 9W, respectively. It is anticipated that a maximum of five (5) vehicles will turn right from the Turnaround intersections during the peak periods evaluated. Table 5 summarizes the gaps available for right-turn exiting traffic.

Table 5 – Available Gaps for Right-Turn Traffic from the Turnarounds on US Route 9W

Time	Northern Turnaround				Southern Turnaround			
	Passenger Cars		Trucks		Passenger Cars		Trucks	
	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced	Number of Gaps	Vehicles Serviced
5:00 a.m.- 6:00 a.m.	63	407	69	315	62	389	66	304
6:00 a.m.- 7:00 a.m.	163	847	167	640	117	630	121	486
7:00 a.m.- 8:00 a.m.	114	343	85	215	187	506	160	329
8:00 a.m.- 9:00 a.m.	130	352	99	215	224	597	167	366
9:00 a.m.- 10:00 a.m.	151	481	123	313	229	664	179	414
10:00 a.m.- 11:00 a.m.	152	498	126	324	189	580	154	373
11:00 a.m.- 12:00 p.m.	150	519	123	333	219	641	177	412
12:00 p.m. - 1:00 p.m.	102	345	84	222	199	593	158	373
1:00 p.m. - 2:00 p.m.	117	371	102	239	254	719	200	454
2:00 p.m. - 3:00 p.m.	146	468	119	305	190	554	158	360
3:00 p.m. - 4:00 p.m.	145	469	111	302	213	610	163	384
4:00 p.m.- 5:00 p.m.	189	550	153	352	245	758	182	470
5:00 p.m.- 6:00 p.m.	163	469	125	294	215	625	169	406

The gap study demonstrates that the available gaps can theoretically accommodate a minimum of 343 passenger cars or 215 trucks at either Turnaround intersections onto US Route 9W during the peak hours (worst-case). The gap study demonstrates that the available gaps can accommodate the number of passenger cars/trucks turning right out of the Turnarounds during the peak hours of operation for the batch plant.

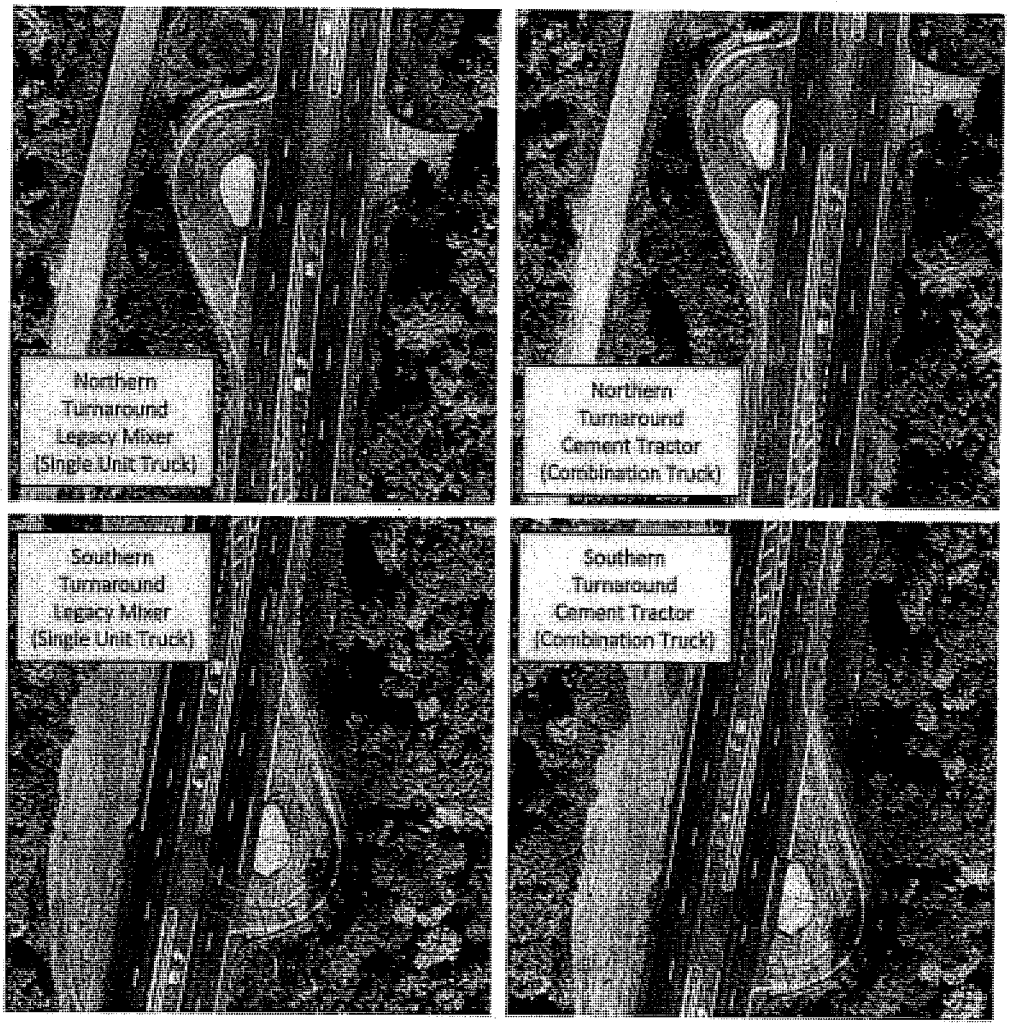
Based on the above analysis, there are an adequate number of available gaps to serve the Turnaround intersections on US Route 9W for all conditions, while providing desirable operating conditions.

5.0 Auto-Turn Assessment

An assessment of the Northern and Southern Turnaround intersections was conducted to ensure that the worst-case design vehicle associated with concrete batch plant operations can negotiate the U-turn movement to head north and south on US Route 9W. Information provided by the Applicant indicates that following trucks will access the site:

- Dump Trucks – 30-feet long
- Legacy and Legacy 2.0 Mixers – 33-feet long
- Cement Deliveries (Tractor Trailers) – 60-feet long
- Aggregate Deliveries (Tractors and Dump Trailers) – 50-feet long

This suggests that the Legacy Mixers and Cement Tractor Trailers represent the largest single unit truck and combination truck that will access the proposed facility, respectively. The Auto-Turn assessment (shown below) indicates that these design vehicles can adequately make the left-turn from US Route 9W to access the turnaround intersections and then can make a right-turn back onto US Route 9W in the opposite direction. Mitigation is not recommended at these intersections.



6.0 Conclusions

The project consists of the construction of various manufacturing structures including the main concrete batch plant building, a conveyor, and material bins on the east side of US Route 9W. The construction season occurs from March 15th to December 15th. The facility will be open from approximately 5:00 a.m. to 6:00 p.m. during the week and from 6:00 a.m. to 1:00 p.m. on Saturday. The existing parcel currently accommodates the Aldo's Automotive Precision Machine Ltd business one fabrication building. Access to the parcel is currently provided via two curb cuts located approximately 0.55 miles north of the US Route 9W/Red Top Road/N. Riverside Road intersection. It is anticipated that the proposed development will be fully built and occupied by 2026.The following is noted regarding the proposed project:

- A review of the existing curb cuts on US Route 9W indicates that only right-turns in and out are permitted due to the median and guiderail; however, a review of US Route 9W indicates that there are "turnarounds" located approximately 2,850-feet north and 750-feet south of the site. Vehicles traveling south on US Route 9W that want to turn left into the site would pass the facility and use the "Southern Turnaround" to make a U-turn in order to make a right-turn into the batch plant. In addition, vehicles that want to travel south on US Route 9W from the batch plant will make a right-turn from the site and use the "Northern Turnaround" in order to make a U-turn.
- The proposed project is expected to generate 18 vehicle trips during the AM peak hour and 16 vehicle trips during the PM peak hour assuming similar operations to the existing *Wilton Bonded Concrete* plant.
- The anticipated traffic volumes for the *Highland Batch Plant* will be below the 50-vehicle threshold outlined by ITE, indicating that detailed intersection analysis is not needed and that the site generated traffic will be accommodated by the existing roadway network.
- The sight distance assessment indicates that adequate intersection and stopping sight distance is provided for a passenger car and a combination truck at the Site Driveway on US Route 9W.
- It is recommended that any site signing be placed a minimum of 15-feet back from the travel way (outside the sight triangle) and that the landscaping plan consider sight lines in order to maintain visibility at the Site Driveway.
- The gap analysis indicates that there are an adequate number of available gaps to serve the Turnaround intersections on US Route 9W for all conditions, while providing desirable operating conditions.
- The Auto-Turn assessment indicates that the worst-case design vehicles can adequately make the left-turn from US Route 9W to access the Northern and Southern Turnaround intersections and then can make a right-turn back onto US Route 9Win the opposite direction. Mitigation is not recommended at these intersections.

If you have any questions, or if we can be of any further service, please do not hesitate to call our office.

Respectfully submitted,
Creighton Manning Engineering & Surveying, PLLC

Mark Nadolny
Associate

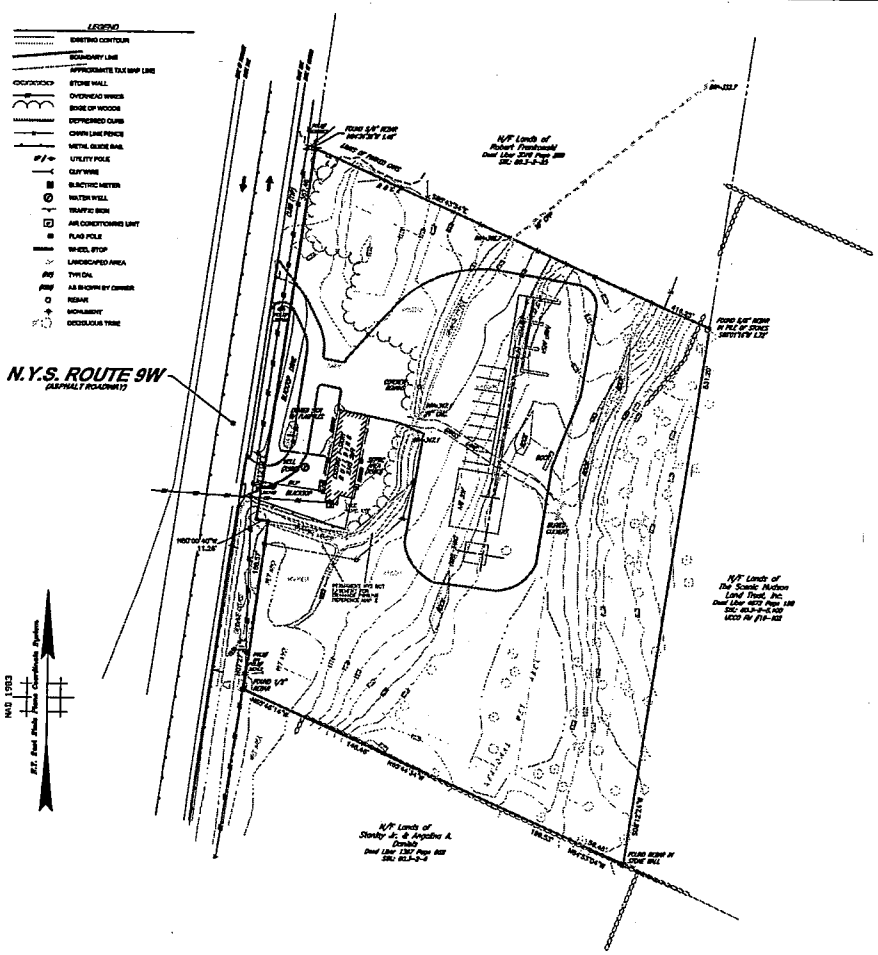
Mark A. Sargent, P.E.
Group Leader/Senior Project Manager

Attachments

Z:\2025\R251377.00 - Clemente-Highland Batch\Working Docs\CM Project Folder\Working\Traffic\Reports\20251021_trip gen ltr_2R251377.00.docx

Attachment A
Site Plan

Highland Batch Plant
Town of Llyod, New York

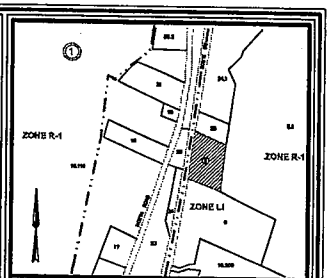


ZONING TABLE		
ZONING INFORMATION LI DISTRICT SOURCE TOWN ZONING MAP		
ITEMS	REQUIRED	PROPOSED
MIN LOT AREA	1 ACRE	4.82 ACRES
MIN LOT WIDTH	150'	534'
MIN LOT DEPTH	150'	400'
MIN FRONT YARD	75'	98.1'
MIN 1 SIDE YARD	30'	291.9'
SIDE TOTAL	70'	417.9'
MIN REAR YARD	30'	910.6'
MAX BUILDING HEIGHT	45'	<45'
MAX BUILDING COVERAGE	35%	12%

NOTE: ZONING CRITERIA IDENTIFIED HEREON ARE BASED UPON THE TOWN CODE DATED 4/07/2010 AS AVAILABLE ON ECODES50.COM

LOCATION MAP SCALE : 1"= 2000'

USGS QUADRANGLE: HYDE PARK



SECTION : 80.3, BLOCK : 2, LOT : 6

TAX MAP SCALE : 1"= 400'

TOTAL AREA : 4.82 ACRES

ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON ATKSPE OBSERVATIONS AT THE TIME OF THE SURVEY.
TEMPORARY BENCHMARKS SET:
TBM#1: RYDE SET UTILITY, ELEVATION= 653.39

SEVEN (7) DAYS PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SURVEY HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION. SURVEYOR IS NOT RESPONSIBLE FOR CONTRACTOR'S FAILURE TO COMPLY.

PROPOSED USE:
ZONING 100 ATTACHMENT 1 USE TABLE

LIGHT MANUFACTURING/ASSEMBLY OF SAND STONE & CEMENT
OFFICE FOR LIGHT INDUSTRIAL USE

HOURS OF OPERATION:

NUMBER OF EMPLOYEES:

PARKING SCHEDULE		
	SPACES REQUIRED	SPACES PROVIDED
INDUSTRIAL USE..... 1/EMPLOYEE OR 2/1000SqFt		

NOTES:

1) UNDERGROUND UTILITIES HAVE NOT BEEN SHOWN, BEFORE ANY SITE EVALUATION, PREPARATION OF DESIGN DOCUMENTS OR EXCAVATION IS TO BEGIN, THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE PROPER UTILITY COMPANIES.

2) SUBSURFACE STRUCTURES NOT VISIBLE OR READILY APPARENT ARE NOT SHOWN AND THEIR LOCATION AND EXTENT ARE NOT CERTIFIED. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY. SURVEY DOES NOT ADDRESS ENVIRONMENTAL CONDITIONS OR LAND ULTILITY.

3) THIS PLAN IS BASED ON A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. (THE SURVEYOR), INFORMATION PROVIDED BY THE CLIENT AND OTHER REFERENCE MATERIAL AS LISTED HEREON. CHANGES TO THIS PROPERTY AFTER THE FIELD DATE ARE NOT THE RESPONSIBILITY OF THE SURVEYOR.

4) THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN. IT IS IMPORTANT THAT A COMPLETE TITLE SEARCH BE PROVIDED TO THE SURVEYOR FOR REVIEW PRIOR TO THE PLACEMENT OF OR ALTERATION TO IMPROVEMENTS ON THE PROPERTY. BOUNDARY AND EASEMENT LINES ARE BASED UPON AVAILABLE DOCUMENTATION AT THE TIME OF SURVEY AND ARE SUBJECT TO SAID TITLE REPORT.
THIS SURVEY DOES NOT ADDRESS OWNERSHIP AND POSSIBLE RIGHTS OF ADJOINING PROPERTIES. THIS SURVEY IS THE OPINION OF THE SURVEYOR AND IS NOT A LEGAL DECISION REGARDING PROPERTY OWNSHIP OR RIGHTS.

5) SUBJECT TO ALL RIGHTS OF WAYS, COVENANTS, EASEMENTS, RESTRICTIONS, CONDITIONS AND AGREEMENTS OF RECORD.

6) THIS SURVEY WAS PREPARED IN ACCORDANCE WITH THE EXISTING CODE OF PRACTICE FOR PROFESSIONAL LAND SURVEYORS AS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS. ANY DISCREPANCIES FOUND ON THE SURVEY SHOULD BE REPORTED TO THE SURVEYOR IMMEDIATELY.

7) N.Y.S. ROUTE 9W ROW BOUNDS BASED ON REFERENCE MAP 3.

8) THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.

9) SUBJECT TO A PERMANENT DRAINAGE EASEMENT AS PER REFERENCE MAP.

10) PARCEL CONTAINS FEDERAL WETLANDS, NOT SHOWN HEREON, AND IS THEREFORE SUBJECT TO ALL REGULATIONS PROMULGATED THEREUNDER.

11) EXISTING CONTOURS BASED ON ACTUAL FIELD SURVEY. ELEVATION DATUM IS IN MVDS BASED ON RTK GPS OBSERVATIONS TAKEN AT THE TIME OF THIS SURVEY.

12) BEARINGS ARE WITH REFERENCE TO AND IS NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE, WITH A VARIANCE OF -0°08'56" FROM DEED LIBER 3442 PAGE 221.

13) SUBJECT TO CONSTRUCTION RIGHTS AS PER REFERENCE MAP 3.

REFERENCE MAP:
1) NEW YORK STATE DEPARTMENT OF TRANSPORTATION APPROPRIATION MAP NO. 574, PARCEL NO. 342, POST PART 1, SH NO. 574.
2) NEW YORK STATE DEPARTMENT OF TRANSPORTATION APPROPRIATION MAP NO. 53.6 POST PART 1, SH NO. 574.
3) NEW YORK STATE DEPARTMENT OF TRANSPORTATION APPROPRIATION MAP NO. 53.6, SHEETS 1&3, POST PART 1, SH NO. 574.

REFERENCE DEED:
JEAN ROUBELIS
= to =
ALDO J. SANTINI, JR.
MARY E. SANTINI
DEED LIBER 3442 PAGE 221
DATED 23 OCTOBER, 2002
FILED 29 OCTOBER, 2002

RECORD OWNER:
ALDO J. JR. & MARY E. SANTINI
264 NYS ROUTE 9W
MARLBORO NY, 12542

APPLICANT:
3260 ROUTE 9W HIGHLAND NY, LLC
c/o LUKE CLEMENTE
PO BOX 171
WATERVLIET NY, 12189

OWNER'S CERTIFICATION
THE UNDERSIGNED, OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE OF THE PROPERTY SHOWN ON THIS PLAT, DOES HEREBY CERTIFY THAT HE/SHE HAS REVIEWED THIS PLAT, IS FAMILIAR WITH THIS MAP, ITS CONTENTS AND ITS NOTES AND HEREBY CONSENTS TO ALL SAID TERMS AND CONDITIONS AS STATED HEREON. Signature Date

PLANNING BOARD ENDORSEMENT
APPROVED BY RESOLUTION OF THE PLANNING BOARD OF THE TOWN OF LLOYD, SUBJECT TO ALL CONDITIONS AND REQUIREMENTS OF SAID RESOLUTION. ANY CHANGE, ERASURE, MODIFICATION OR REVISION OF THIS PLAT AS APPROVED SHALL VOID THIS APPROVAL. Chairperson — Town Planning Board Date

GRAPHIC SCALE
0 50 100 200 300
(IN FEET)
1 inch = 60 ft.

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S SUBSCRIBED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.

THE STATE OF NEW YORK REQUIRES NOTIFICATION OF EXCAVATORS, DESIGNERS, OPERATORS AND OWNERS OF CERTAIN FACILITIES BEFORE ANY EXCAVATION IS DONE IN THE STATE.

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

PATRICIA PAULI BROOKS, LS
NEW YORK PROFESSIONAL LAND SURVEYOR (NYPLS)

PROGRESS PRINT

NO.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE

FIELD DATE	04-07-25
FIELD BOOK NO.	HVF 18
FIELD BOOK PG.	PG 83
FIELD CREW	BN/DD
DRAWN	GIO
CLIENT	
REVISIONS	
S.D.	

MAP OF SITE PLAN PREPARED FOR
3260 ROUTE 9W
HIGHLAND NY, LLC
SBL: 80.3-2-6 TOWN OF LLOYD
COUNTY OF ULSTER, STATE OF NEW YORK

CONTROL POINT ASSOCIATES INC PC
21 MAIN STREET
HIGHLAND, NY 12528
845-691-7339
WWW.CONTROLPOINT.COM

APPROVED	DATE	SCALE	FILE NO.	SHEET NO.
P.P.B.	04-15-2025	1" = 60'	13-250097-00	1 OF 1

Tri-State Traffic Data, Inc.

610-466-1469
TSTData.com

Location: Highland
Road Name: Rte 9W
Segment: .452mi N/O Red Top Rd
Date: 9/4/2025

GPS: 41.757623, -73.96213

Start Time	Mon 01-Sep-25	Tue 02-Sep-25	Wed 03-Sep-25	Thu 04-Sep-25	Fri 05-Sep-25	Average Day	Sat 06-Sep-25	Sun 07-Sep-25	Week Average
12:00 AM	*	*	*	*	38	38	60	48	49
01:00	*	*	*	*	19	19	36	29	28
02:00	*	*	*	*	19	19	23	34	25
03:00	*	*	*	*	21	21	11	16	16
04:00	*	*	*	*	34	34	16	10	20
05:00	*	*	*	*	78	78	46	27	50
06:00	*	*	*	*	272	272	112	69	151
07:00	*	*	*	*	**480**	**480**	199	113	264
08:00	*	*	*	*	435	435	229	150	271
09:00	*	*	*	*	363	363	288	214	288
10:00	*	*	*	*	311	311	288	239	279
11:00	*	*	*	*	357	357	**340**	**285**	**327**
12:00 PM	*	*	*	*	329	329	321	295	315
01:00	*	*	*	*	372	372	331	**331**	345
02:00	*	*	*	*	447	447	304	297	349
03:00	*	*	*	*	556	556	317	291	388
04:00	*	*	*	*	**649**	**649**	**346**	319	**438**
05:00	*	*	*	*	528	528	340	273	380
06:00	*	*	*	*	317	317	261	256	278
07:00	*	*	*	*	275	275	233	237	248
08:00	*	*	*	*	213	213	177	167	186
09:00	*	*	*	0	162	81	172	120	114
10:00	*	*	*	**87**	141	114	116	76	105
11:00	*	*	*	61	109	85	75	57	76
Day Total	0	0	0	148	6525	6393	4641	3953	4990
% Avg. WkDay	0.0%	0.0%	0.0%	2.3%	102.1%				
% Avg. Week	0.0%	0.0%	0.0%	3.0%	130.8%	128.1%	93.0%	79.2%	
AM Peak	-	-	-	-	07:00	- 07:00	- 11:00	11:00	- 11:00 - -
Vol.	-	-	-	-	480	- 480	- 340	285	- 327 - -
PM Peak	-	-	-	22:00	16:00	- 16:00	- 16:00	13:00	- 16:00 - -
Vol.	-	-	-	87	649	- 649	- 346	331	- 438 - -

Tri-State Traffic Data, Inc.

610-466-1469
TSTData.com

Location: Highland
Road Name: Rte 9W
Segment: .452mi N/O Red Top Rd
Date: 9/4/2025

GPS: 41.757623, -73.96213

Start Time	Mon 08-Sep-25	Tue 09-Sep-25	Wed 10-Sep-25	Thu 11-Sep-25	Fri 12-Sep-25	Average Day	Sat 13-Sep-25	Sun 14-Sep-25	Week Average
12:00 AM	27	40	36	42	53	40	54	77	47
01:00	18	11	13	14	16	14	20	26	17
02:00	19	22	19	24	21	21	26	37	24
03:00	23	22	23	19	22	22	22	17	21
04:00	30	44	39	40	36	38	16	18	32
05:00	89	94	79	86	84	86	46	23	72
06:00	264	289	312	304	273	288	106	85	233
07:00	**516**	**515**	**500**	**520**	**480**	**506**	214	119	**409**
08:00	431	487	498	509	422	469	269	155	396
09:00	306	340	342	343	327	332	334	249	320
10:00	270	300	317	334	290	302	**403**	283	314
11:00	308	295	338	307	357	321	370	**303**	325
12:00 PM	302	349	336	328	348	333	390	369	346
01:00	330	328	323	312	360	331	**407**	334	342
02:00	327	398	354	396	391	373	373	354	370
03:00	447	491	531	506	568	509	395	**371**	473
04:00	**597**	**580**	**574**	**579**	581	**582**	406	327	**521**
05:00	538	516	561	574	**593**	556	372	329	498
06:00	308	345	302	359	388	340	323	269	328
07:00	229	252	300	287	294	272	263	220	264
08:00	185	160	216	196	221	196	182	188	193
09:00	125	121	137	152	221	151	165	119	149
10:00	106	115	111	94	167	119	137	74	115
11:00	58	87	76	68	109	80	106	53	80
Day Total	5853	6201	6337	6393	6622	6281	5399	4399	5889
% Avg. WkDay	93.2%	98.7%	100.9%	101.8%	105.4%				
% Avg. Week	99.4%	105.3%	107.6%	108.6%	112.4%	106.7%	91.7%	74.7%	
AM Peak	07:00	07:00	07:00	07:00	07:00	- 07:00	- 10:00	11:00	- 07:00 - -
Vol.	516	515	500	520	480	- 506	- 403	303	- 409 - -
PM Peak	16:00	16:00	16:00	16:00	17:00	- 16:00	- 13:00	15:00	- 16:00 - -
Vol.	597	580	574	579	593	- 582	- 407	371	- 521 - -

Tri-State Traffic Data, Inc.

610-466-1469
TSTData.com

Location: Highland
Road Name: Rte 9W
Segment: .452mi N/O Red Top Rd
Date: 9/4/2025

GPS: 41.757623, -73.96213

Start Time	Mon 15-Sep-25	Tue 16-Sep-25	Wed 17-Sep-25	Thu 18-Sep-25	Fri 19-Sep-25	Average Day	Sat 20-Sep-25	Sun 21-Sep-25	Week Average
12:00 AM	30	29	33	33	**27**	30	*	*	30
01:00	12	13	13	18	*	14	*	*	14
02:00	11	15	13	23	*	16	*	*	16
03:00	16	22	24	14	*	19	*	*	19
04:00	31	39	33	37	*	35	*	*	35
05:00	91	104	103	87	*	96	*	*	96
06:00	262	295	294	261	*	278	*	*	278
07:00	**486**	**502**	**494**	**494**	*	**494**	*	*	**494**
08:00	434	466	479	453	*	458	*	*	458
09:00	342	342	334	360	*	344	*	*	344
10:00	287	289	310	297	*	296	*	*	296
11:00	288	286	347	313	*	308	*	*	308
12:00 PM	268	344	345	316	*	318	*	*	318
01:00	347	342	349	332	*	342	*	*	342
02:00	382	347	360	397	*	372	*	*	372
03:00	473	511	532	516	*	508	*	*	508
04:00	**580**	**543**	**604**	590	*	**579**	*	*	**579**
05:00	533	524	564	**598**	*	555	*	*	555
06:00	323	315	336	425	*	350	*	*	350
07:00	228	252	234	296	*	252	*	*	252
08:00	167	187	205	211	*	192	*	*	192
09:00	100	135	139	163	*	134	*	*	134
10:00	84	84	100	98	*	92	*	*	92
11:00	55	74	69	66	*	66	*	*	66
Day Total	5830	6060	6314	6398	27	6148	0	0	6148
% Avg. WkDay	94.8%	98.6%	102.7%	104.1%	0.4%				
% Avg. Week	94.8%	98.6%	102.7%	104.1%	0.4%	100.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	00:00	07:00	-	-	07:00
Vol.	486	502	494	494	27	494	-	-	494
PM Peak	16:00	16:00	16:00	17:00	-	16:00	-	-	16:00
Vol.	580	543	604	598	-	579	-	-	579
Grand Total	11683	12261	12651	12939	13174	18822	10040	8352	17027

 ADT ADT 5,767 AADT 5,767

Tri-State Traffic Data, Inc.

610-466-1469
TSTData.com

Location: Highland
Road Name: Rte 9W
Segment: 755' S/O Upper North Rd
Date: 9/4/2025

GPS: 41.766776, -73.960707

Start Time	Mon 01-Sep-25	Tue 02-Sep-25	Wed 03-Sep-25	Thu 04-Sep-25	Fri 05-Sep-25	Average Day	Sat 06-Sep-25	Sun 07-Sep-25	Week Average
12:00 AM	*	*	*	*	42	42	61	49	51
01:00	*	*	*	*	12	12	23	29	21
02:00	*	*	*	*	14	14	14	15	14
03:00	*	*	*	*	20	20	20	12	17
04:00	*	*	*	*	37	37	14	18	23
05:00	*	*	*	*	124	124	41	22	62
06:00	*	*	*	*	319	319	92	58	156
07:00	*	*	*	*	**466**	**466**	175	95	245
08:00	*	*	*	*	422	422	194	159	258
09:00	*	*	*	*	316	316	277	194	262
10:00	*	*	*	*	320	320	**332**	264	**305**
11:00	*	*	*	*	289	289	328	**272**	296
12:00 PM	*	*	*	*	334	334	**361**	357	351
01:00	*	*	*	*	362	362	355	320	346
02:00	*	*	*	*	428	428	324	388	380
03:00	*	*	*	*	463	463	332	354	383
04:00	*	*	*	*	**512**	**512**	325	**402**	**413**
05:00	*	*	*	*	501	501	290	278	356
06:00	*	*	*	*	362	362	266	292	307
07:00	*	*	*	*	256	256	198	236	230
08:00	*	*	*	*	210	210	191	148	183
09:00	*	*	*	*	210	210	171	103	161
10:00	*	*	*	**92**	175	134	158	67	123
11:00	*	*	*	72	102	87	88	38	75
Day Total	0	0	0	164	6296	6240	4630	4170	5018
% Avg. WkDay	0.0%	0.0%	0.0%	2.6%	100.9%				
% Avg. Week	0.0%	0.0%	0.0%	3.3%	125.5%	124.4%	92.3%	83.1%	
AM Peak	-	-	-	-	07:00	07:00	10:00	11:00	10:00
Vol.	-	-	-	-	466	466	332	272	305
PM Peak	-	-	-	22:00	16:00	16:00	12:00	16:00	16:00
Vol.	-	-	-	92	512	512	361	402	413

Tri-State Traffic Data, Inc.

610-466-1469
TSTData.com

Location: Highland
Road Name: Rte 9W
Segment: 755' S/O Upper North Rd
Date: 9/4/2025

GPS: 41.766776, -73.960707

Start Time	Mon 08-Sep-25	Tue 09-Sep-25	Wed 10-Sep-25	Thu 11-Sep-25	Fri 12-Sep-25	Average Day	Sat 13-Sep-25	Sun 14-Sep-25	Week Average
12:00 AM	36	26	40	44	47	39	80	78	50
01:00	14	16	14	14	16	15	21	22	17
02:00	8	7	12	11	14	10	12	22	12
03:00	22	16	20	16	20	19	10	12	17
04:00	48	35	44	42	39	42	19	13	34
05:00	138	160	178	158	130	153	50	30	121
06:00	316	354	352	312	299	327	106	72	259
07:00	**544**	**536**	**546**	**542**	**470**	**528**	168	108	**416**
08:00	424	491	502	389	389	439	224	199	374
09:00	342	334	350	328	374	346	298	262	327
10:00	316	334	332	303	300	317	354	288	318
11:00	309	265	286	292	330	296	**428**	**354**	323
12:00 PM	308	320	346	366	332	334	**420**	427	360
01:00	342	316	340	375	312	337	402	**455**	363
02:00	364	406	421	362	452	401	376	392	396
03:00	459	508	460	491	448	473	382	391	448
04:00	472	492	533	530	**513**	508	388	362	**470**
05:00	**496**	**544**	**548**	**531**	512	**526**	364	298	470
06:00	283	321	366	316	426	342	275	240	318
07:00	240	227	256	248	282	251	248	260	252
08:00	202	190	200	247	265	221	226	190	217
09:00	104	106	142	147	234	147	216	104	150
10:00	78	77	84	110	170	104	184	69	110
11:00	47	66	56	60	130	72	118	57	76
Day Total	5912	6147	6428	6234	6504	6247	5369	4705	5898
% Avg. WkDay	94.6%	98.4%	102.9%	99.8%	104.1%				
% Avg. Week	100.2%	104.2%	109.0%	105.7%	110.3%	105.9%	91.0%	79.8%	
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	11:00	11:00	07:00
Vol.	544	536	546	542	470	528	428	354	416
PM Peak	17:00	17:00	17:00	17:00	16:00	17:00	12:00	13:00	16:00
Vol.	496	544	548	531	513	526	420	455	470

Tab 17

Tab 17

Melinda Acker

From:	Christine Matthews <matthewschristineg@gmail.com>
Sent:	Friday, May 8, 2026 10:05 AM
To:	planning@cliftonpark.org
Cc:	Residents for Responsible Development
Subject:	Submission for the Official Record — 1910 US Route 9 Concrete Batch Plant (SPR25-000035): Request to Hold Application Pending Town Board Action on Pending Concrete Batch Plant Moratorium
Attachments:	Lloyd FOIL Materials.zip; Brief_for_Official_Record.docx

May 8, 2026

Town of Clifton Park Planning Board
c/o John Scavo, Jr., Planning Department Director
Town of Clifton Park
One Town Hall Plaza
Clifton Park, NY 12065

Re: Submission for the Official Record — 1910 US Route 9 Concrete Batch Plant (SPR25-000035): Request to Hold Application Pending Town Board Action on Pending Concrete Batch Plant Moratorium

Dear Chair and Members of the Planning Board,

Residents for Responsible Development ("RRD") submits the following materials — obtained through Freedom of Information Law (FOIL) requests to the Town of Lloyd, Ulster County, New York — for the official record in the Town's ongoing review of the proposed concrete batch plant at 1910 US Route 9 (Permit Summary SPR25-000035). The materials concern a separate but substantively similar concrete batch plant proposal advanced by the same applicant principal, Luke Clemente, in the Town of Lloyd, prepared by the same engineering firm of record, Environmental Design Partnership, LLP.

The materials are submitted for two specific purposes, set out below.

First, RRD respectfully requests that the Planning Board hold the application in abeyance pending the Town Board's consideration of the proposed concrete batch plant moratorium for which the Town Board opened a public hearing on April 21, 2026 (which remains open and is receiving public input) and which has been referred to the Saratoga County Planning Board pursuant to General Municipal Law §239-m. The proposed moratorium goes directly to whether and under what regulatory framework concrete batch plant applications should be processed in the Town. Adjacent municipalities are taking parallel action: the Town of Halfmoon — in which a portion of the 1910 US Route 9 sitework is planned — has scheduled a May 20, 2026 public hearing on a moratorium covering asphalt, concrete cement plants, and pesticide manufacturing; and the Town of Lloyd, evaluating a substantively similar concrete batch plant application by the same applicant, is actively drafting a local law that would expressly classify "concrete batching plants including

ready-mix plants or raw concrete manufacturing" as Heavy Industry. Advancing this application toward SEQRA classification or substantive site plan determinations while the Town Board considers whether to enact a moratorium on the very use category at issue is procedurally premature.

Second, in the event the Board does make any SEQRA classification determination prior to Town Board action on the moratorium, RRD respectfully requests that the Board treat the Lloyd Town Board's independent legislative classification of concrete batching plants as Heavy Industry as evidence supporting a Positive Declaration. A peer municipality, evaluating the same applicant on the same operational template, has determined as a matter of legislative judgment that this use category produces "significant adverse environment[al] impact" and "associated dust, smoke, vibration, noise, hazardous materials and vehicle traffic and other factors" that warrant Heavy Industry treatment. That contemporaneous determination by a peer municipality is exactly the kind of independent evidence the SEQRA significance analysis contemplates.

In addition, RRD notes that the Clifton Park record produced under FOIL contains no document evidencing a formal written zoning determination or use interpretation issued by the Town's Zoning Administrator under any code-prescribed procedure. The applicant's representation in EDP's August 18, 2025 letter that "The Town's Zoning Officer has confirmed that the proposed land use is permitted in the LI-2 Light Industrial Zoning District" is supported in the FOIL record only by review comments on a site-plan checklist (Scott Reese's April 18, 2025 entries on the SPR25-000016 Concept submission). To the extent a formal written determination exists outside the FOIL record produced, RRD respectfully requests that it be identified and made part of the public record. The accompanying Brief sets out the basis for these requests in greater detail.

In support of the foregoing, Residents for Responsible Development submits the following materials for the official record:

- Brief for the Official Record — The Town of Lloyd Concrete Batch Plant Materials and Their Applicability to the Town of Clifton Park 1910 US Route 9 Application (the "Brief"), submitted herewith.
- Town of Lloyd Planning Board Application package for 3260 Route 9W (3260 Route 9W Highland NY LLC), dated March 10, 2026, obtained through FOIL.
- Town of Lloyd Planning Board Regular Meeting Minutes, March 26, 2026, obtained through FOIL.
- Email from Luke Clemente to Chair Cuciti (Town of Lloyd), March 26, 2026, obtained through FOIL.
- Draft Town of Lloyd Local Law A of 2026 ("2026 Zoning Code Amendments"), in redline form, obtained through FOIL.

Residents for Responsible Development respectfully requests that the Planning Board: (i) incorporate this letter, the accompanying Brief, and the underlying Lloyd documents into the official record for SPR25-000035; (ii) hold the application in abeyance pending Town Board action on the pending concrete batch plant moratorium; (iii) treat the Lloyd Town Board's independent legislative classification of concrete batching plants as Heavy Industry as evidence supporting a Positive Declaration in any SEQRA classification decision; and (iv) identify any formal written zoning determination concerning the proposed use, if one has been issued separately from staff review comments.

Thank you for the Board's consideration. Residents for Responsible Development respectfully requests that this letter and the accompanying Brief and exhibits be incorporated into the official record.

Respectfully submitted,

Residents for Responsible Development

By: Christine Matthews, 5 Cinnamon Lane, Clifton Park, NY

Enclosures (5)

BRIEF FOR THE OFFICIAL RECORD

The Town of Lloyd Concrete Batch Plant Materials and Their Applicability to the Town of Clifton Park 1910 US Route 9 Application

Prepared by Residents for Responsible Development

May 8, 2026

Executive Summary

This brief synthesizes four documents obtained by Residents for Responsible Development ("RRD") through a Freedom of Information Law (FOIL) request to the Town of Lloyd, Ulster County, New York, and assesses their applicability to the proposed concrete batch plant at 1910 US Route 9, currently under review by the Town of Clifton Park Planning Board. The Lloyd materials concern a separate but substantively similar concrete batch plant proposal at 3260 Route 9W in Highland (Town of Lloyd), submitted by the same applicant principal — Luke Clemente, of Bonded Concrete — and prepared by the same engineering firm of record, Environmental Design Partnership, LLP.

Three findings are most pertinent:

- The operational narrative submitted to Lloyd is, paragraph for paragraph, the same operational narrative submitted to Clifton Park. The two projects are the same operation on different sites at different scales, advanced by the same operator using the same engineer.
- The Town of Lloyd, after its Planning Board chair questioned whether a concrete batch plant fits the Town's Light Industrial definition, is actively drafting a local law that would amend its zoning code to (i) add a definition of Heavy Industry expressly listing "concrete batching plants including ready-mix plants or raw concrete manufacturing," and (ii) rewrite Light Industry to require all manufacture, processing, and packaging to occur "within a building" and to expressly prohibit "exterior silos, conveyors, hoppers." The draft was created on or before March 24, 2026 and last saved April 6, 2026 by David Gordon, identified in the Lloyd Planning Board minutes as the Town's land use attorney.
- The Clifton Park record produced under FOIL contains no formal written zoning determination or use interpretation issued under any code-prescribed procedure for the proposed concrete batch plant. The applicant's representation that the Town's Zoning Officer has "confirmed" the use is supported in the FOIL record only by review comments on a site-plan checklist, not by a formal written instrument.

Taken together, the Lloyd materials are a contemporaneous record of a peer municipality, evaluating the same applicant and same operational template, reaching different conclusions and following

different procedural paths than Clifton Park has followed to date. RRD respectfully requests that the materials and analysis presented herein be incorporated into the official record and considered in the Board's ongoing review.

Part I. The Lloyd Materials

A. The Application Package (March 10, 2026)

On March 10, 2026, the applicant entity "3260 Route 9W Highland NY LLC" — with Clemente Materials, Inc. as managing member and Luke Clemente as the signing officer — filed a Planning Board Application with the Town of Lloyd for a concrete batch plant at 3260 Route 9W in Highland, Ulster County. The professional representative of record is Environmental Design Partnership, LLP (EDP), the same firm representing the applicant in Clifton Park, with Joseph C. Dannible, R.L.A. signing the Lloyd Short Environmental Assessment Form (dated March 5, 2026).

The Lloyd application package includes the Town of Lloyd Planning Board Application form, a Project Narrative dated March 10, 2026, the recorded Bargain and Sale Deed conveying the parcel from the prior owner to the applicant LLC (recorded August 27, 2025), the Short EAF (Part 1), an EAF Mapper Summary Report, a NYSDEC Letter of No Jurisdiction for state freshwater wetlands (dated June 24, 2025), a FEMA Flood Hazard Areas figure showing the site outside the 100-year floodplain, and a signed Town of Lloyd Escrow Account Consent ($1,000 application fee, $7,500 escrow).

The site is 4.82 acres on tax parcel 80.3-2-8, zoned LI (Light Industrial) under Town of Lloyd Code Chapter 100. The proposed development is a 4,600 ± sf batch plant building with conveyor system and aggregate piles; the existing on-site building is to be repurposed as office and support space. Disturbance is approximately 3.43 acres, requiring NYSDEC SPDES coverage and a full SWPPP. Approximately 0.095 acres of wetland disturbance is acknowledged, requiring USACE permitting; NYSDOT approval is needed for curb-cut modifications.

The Project Narrative's "General Overview of the Batch Plant Operations" (pp. 2–4) is, paragraph for paragraph, the same operational text submitted to Clifton Park as the "Overview of Concrete Batch Plant Operations." Both describe the same five ingredients (sand, stone, cement, admixtures, water); the same four primary plant components (ground aggregate hoppers, conveyor systems, inside aggregate storage and batching building, and cement silos); the same description of bag-house filters at the top of the cement silos; the same vacuum shroud at the mixer-drum opening; the same closed-loop three-basin washout system; and the same 70/16/14% volumetric breakdown of sand-and-stone, water, and cement. The only material variation between the two narratives is sourcing: Lloyd states that aggregate "will generally come from aggregate mines generally located within Ulster, Orange and Dutchess counties," while Clifton Park states sourcing from the applicant's aggregate mines in Saratoga County. Both narratives end with the same boilerplate offer to attach "pictures of an existing concrete plant owned by us."

B. The Lloyd Planning Board Minutes (March 26, 2026)

The Lloyd Planning Board met on March 26, 2026 with members Cuciti (Chair), McCarthy, Long, Zani, Violaris, and Meltzer (via Zoom) in attendance, with Christian Moore from CPL engineers, David Gordon as land use attorney, and staff Sarah VanNostrand and Dave Barton present. The Clemente application was discussed under Administrative Discussion — it was not on the formal agenda for action.

Chair Cuciti let the Board know that he had "requested additional information from the applicant related to the requirements of site plan, dust, traffic, noise, vibration and similar impacts." Board member McCarthy questioned what was being asked beyond what the Code already requires. Cuciti responded that everything requested ties back to site plan code requirements.

On the substantive zoning question, member Gordon stated that "it isn't immediately apparent" whether the proposed use properly falls within Light Industrial classification "because the definition is so broad due to the vagueness of things like noise, vibration or other things that are more rightly in the purview of the Planning Board." Gordon further stated that "it would be difficult for a Code Enforcement Officer to know how big the impacts are." Member Meltzer questioned the definition of "objectionable amount of" dust, noise, etc., and how to figure out what "objectionable" means. Discussion turned to definitions of Light Industry and Heavy Industry.

Cuciti offered an example of plant scale: "the Board does not know if the plant creates 20 yards of concrete a day or 2,000 yards." The stated goal was "to have a more complete application to make meetings more worthwhile." Discussion turned to the SEQRA process and whether the Board's role is to determine whether items rise to the level of an adverse environmental impact, potentially requiring a Positive Declaration rather than a Negative Declaration. Discussion also covered impacts on residential and agricultural uses near the site.

C. The Applicant's Email to the Lloyd Chair (March 26, 2026)

On the morning of the March 26 meeting, Luke Clemente sent an email to Chair Cuciti (with Sarah Van Nostrand cc'd). The email's opening paragraph notes the application was filed on March 10, 2026 and states that the applicant "had hoped to have had the opportunity to appear before the Planning Board during its workshop on March 19th and its regular meeting this evening to commence the SEQRA process (i.e., Circulate Notice of Intent of the Planning Board to Serve as Lead Agency) but we have been advised that we are not on the agenda."

The second paragraph acknowledges that David Barton "has made a request for additional information on our application" and states the applicant is "open to providing additional information prior to the designation of the Planning Board as SEQRA Lead Agency." Clemente notes that "the Planning Board has accepted the application, cashed our application fee and escrow checks, and presumably has commenced its review in consultation with David Barton." He requests that "the additional information request come in the form of a letter/memo on Planning Board letterhead so that it is part of the

Proceedings/Record akin to a Comment Review Memo we would receive in advance of, or even during, a Planning Board appearance."

The closing paragraph states that the applicant wants to "avoid any appearance that our communications on this matter are not official, or not transparent to the community."

D. The Draft Heavy Industry Local Law (Local Law A of 2026)

A separate FOIL response produced a draft local law titled "Town of Lloyd Local Law A of the year 2026," entitled the "2026 Zoning Code Amendments." The file was created on April 6, 2026 and last saved by David Gordon on April 6, 2026; the filename references an earlier draft date of March 24, 2026 — two days before the Lloyd Planning Board meeting at which the Light/Heavy classification was openly discussed. The draft is in active redline format with placeholder enactment language ("April May X, 2026"); it has not yet been enacted.

The draft would amend Town of Lloyd Code Section 100-8 (Definitions) in three principal ways:

- **Heavy Industry — added definition.** A new definition would be added defining Heavy Industry as "a use engaged in the basic provisioning and manufacturing and processing of materials or products predominately from extracted or raw natural resources" or involving "storage of, or manufacturing processes using, hazardous or explosive materials." Examples enumerated include "metal refineries, chemical manufacturing, ***concrete batching plants including ready-mix plants or raw concrete manufacturing***, asphalt batching, scrap metal processors, chemical synthesis plants, tire recycling facilities and large-scale vehicle salvage."
- **Light Industry — rewritten definition.** Light Industry would be redefined as "Manufacture, assembly, treatment, processing, or packaging of products ***within a building***." The redefined Light Industry would not "emit noticeable levels of smoke, noise, dust, odor, glare, or vibration beyond the building envelope," would not produce "air emissions or heavy truck traffic beyond those associated with a typical commercial building of similar size," and — most pointedly — "***Exterior silos, conveyors, hoppers are not allowed***." Vertical stacks or chimneys would be capped at the zone's height limit.
- **Use Table revisions.** The existing Use Table would be replaced with a new amended Use Table to accommodate the new Light/Heavy definitions.

The legislative findings recite that the Town Board has "considered the potential impacts of... industrial uses, including chemical manufacturing, large scale vehicle salvage, concrete batch plants or manufacturing products containing concrete and similar uses and the associated dust, smoke, vibration, noise, hazardous materials and vehicle traffic and other factors that result from those uses that pose a significant adverse environment[al] impact within the Town and their potential impacts on surrounding... residential... areas."

Part II. The Two Projects Compared

A. Same Applicant Principal, Same Engineer, Same Operational Template

The Clifton Park applicant of record is 1910 Route 9 Clifton Park, LLC, with Luke Clemente identified personally as Property Owner / Contract Vendee. The Lloyd applicant is 3260 Route 9W Highland NY LLC, with Clemente Materials, Inc. as managing member. Both applications give the same email signature (LukeC@bondedconcrete.com) and the same Bonded Concrete contact information. Both rely on the existing Wilton, NY Bonded Concrete plant as the operational reference — in Clifton Park, the CME traffic study counted trips at Wilton's driveway on August 19, 2025, and the Town's Zoning Administrator visited a Clemente-operated batch plant before issuing his April 18, 2025 use comments; in Lloyd, the Project Narrative concludes by attaching "pictures of an existing concrete plant owned by us."

EDP is the engineering firm of record on both projects, with two of its partners visible in the records: Gavin Vuillaume, R.L.A. signs the Clifton Park submissions and is identified as Applicant on the Town's Permit Summary; Joseph C. Dannible, R.L.A. signs the Lloyd Short EAF and is the Lloyd Professional Representative. Both work out of EDP's Clifton Park office at 900 Route 146.

B. Side-by-Side Project Profile

The two projects differ on several quantitative and site-specific dimensions, summarized below:

Dimension	Clifton Park (1910 Route 9)	Lloyd (3260 Route 9W)
Parcel size	19.4 acres	4.82 acres
Disturbance	3.6 acres (CME); reviewer-flagged inconsistencies	~3.43 acres (Short EAF)
Building size	2,700 sf new building + 61-ft cement bin	4,600 sf batch plant + reused existing building
Tallest structure	61 ft (required 11-ft ZBA variance from 50-ft limit)	Not specified in narrative
Zoning district	L2 / LI-2 Light Industrial 2 (Chapter 208)	LI Light Industrial (Chapter 100)
SEQRA EAF filed	Short EAF (Mar 2025) → Long/Full EAF (Aug 2025)	Short EAF (Part 1 only) (Mar 2026)

Dimension	Clifton Park (1910 Route 9)	Lloyd (3260 Route 9W)
On-site freshwater wetlands	Yes — EDP biologist delineated April 2025; defined perennial stream	DEC Letter of No Jurisdiction (June 24, 2025)
Adjacent surface waters	Dwaas Kill (Class A trout stream, 303(d)-impaired)	No comparable resource identified
Aquifer / drinking water context	Within Colonie Channel Primary Aquifer	On-site well (no Primary Aquifer flagged)
Listed-species habitat	Karner Blue / Frosted Elfin within ¼-mile	None identified in record
Multi-municipality	Site straddles Town of Halfmoon line	Single municipality
Traffic projection	108 daily trips (CME, Aug 20, 2025); 18 AM / 16 PM peak-hour	Not yet quantified in record
Reference plant	Wilton Bonded Concrete (138 daily trips at max ops)	Same Wilton plant referenced ("pictures attached")
Operating hours	5 a.m.–6 p.m. weekdays; 6 a.m.–1 p.m. Sat (per CME)	Not yet quantified in record
Daily water use	~10,000 gallons/day (well water)	Not quantified
Fuel storage	10,000-gallon tank (must be aboveground per ECC)	Not addressed

C. Operational Narrative — Boilerplate

A side-by-side comparison of the operational narratives confirms that the texts are substantially identical. Both describe concrete as sold by the cubic yard (27 cubic feet); both list the same five ingredients; both describe the same four primary plant components (ground aggregate hoppers, conveyor systems, inside aggregate storage and batching building, and cement silos); both describe pneumatic discharge of cement under low pressure with bag-house relief at the silo top; both describe a vacuum shroud with separate filtration at the mixer drum opening recycling captured cement back to the silo; both describe a closed-loop three-basin washout in the aggregate building with sand, stone, and cement recovered for reuse; and both note approximate 7–10 minute mixing at 17 revolutions per

minute. The implication for review is that any operational claim made in one record is, by the applicant's own framing, generalizable to the other.

Part III. Zoning Code Comparison

A. Architectural Differences

Clifton Park's zoning is at Town Code Chapter 208. The 1910 Route 9 site is in the L2 / LI-2 Light Industrial 2 district, with operative provisions in Section 208-64. Section 208-64(B)(1) lists "Assembling/fabrication, processing" as a permitted use of right. Section 208-64(C)(3) prohibits "Manufacture of cement or abrasives" as a heavy industrial use. Section 208-64(F) sets performance standards. Bulk and dimensional requirements are at Section 208-65; the height limit is 50 feet, with Planning Board visual assessment required for anything over 35 feet (Section 208-65(D)). Site plan procedures and SEQRA-related provisions appear in Section 208.95.

Lloyd's zoning is at Town Code Chapter 100, originally adopted by Local Law No. 4 of 2010. Definitions are in Article II (Section 100-8) — the section being amended by Local Law A of 2026. The Use Table is an attachment to Chapter 100. The current Light Industry definition, as visible from the redline, is brief and effectively a list of permitted activities (beverage bottling, distribution and warehousing, computer manufacture, precision instruments, etc.) with the operational constraint that uses "should not emit objectionable levels of smoke, noise, dust, odor, glare, or vibration." The redline does not show a definition of Heavy Industry being struck, indicating the existing code does not currently define one. Initial use determinations are made by the Building Department Director under Chapter 42, with appeal to the ZBA.

B. Common Architecture

Both Towns: (i) define Light Industrial as a permitted-use district with operational/performance standards rather than enumerating every conceivable use; (ii) treat the Planning Board as SEQRA lead agency for site plan review; (iii) require written site plan submissions; (iv) embed dimensional requirements separately from use definitions; and (v) rely on a Light Industry definition that turns on whether a use produces externalities (noise, odor, dust, vibration) above some threshold defined in lay terms.

C. Material Differences

First, Clifton Park has an enumerated heavy-industrial prohibition list (Section 208-64(C)) including "Manufacture of cement or abrasives." Lloyd's existing code does not appear to define Heavy Industry at all. The draft Local Law A is being drafted to remedy that gap. Second, Lloyd's draft amendment would add a "within a building" requirement to Light Industry and would expressly prohibit "exterior silos, conveyors, hoppers" — a direct response to the four primary plant components the applicant has

described to both Towns. Third, the height-limit posture differs in form but not in substance: Clifton Park's 50-foot limit at Section 208-65(D) required the applicant to obtain an 11-foot ZBA variance for the cement bin; Lloyd's draft would constrain "vertical stacks or chimneys" to the zone height limit.

D. The Shared Ambiguity

Both codes converge on the same fundamental ambiguity that this applicant's project exposes: whether a concrete batch plant fits Light Industrial. Both codes use lay descriptors — "objectionable," "noxious," "noticeable" — without operational thresholds, and both leave use classification to administrative interpretation by the Zoning Officer / Building Department Director, with appeal to the ZBA. The two Towns are now resolving that ambiguity in opposite directions: Clifton Park, administratively, by reading "Manufacture of cement or abrasives" narrowly to mean literal cement manufacturing (kilning of limestone and clay at temperatures up to 2,600 °F) and treating the proposed concrete batch mixing as permitted "Assembling/fabrication, processing" under Section 208-64(B)(1); and Lloyd, legislatively, by drafting a local law that classifies concrete batching plants as Heavy Industry as a matter of definition, regardless of whether the cement itself is calcined on site.

Part IV. Concerns Raised in Both Records

A. Concerns Common to Both Towns

Both Towns have explicitly flagged the same five categories of impact: dust, noise, vibration, traffic, and the fundamental Light/Heavy classification question. Clifton Park Zoning Administrator Scott Reese, on April 18, 2025, required the applicant to provide a narrative on how the proposed use "will not result in any noxious noise or odor outside the district and does not have a deleterious effect on the air or water quality and how the operation will not exceed any of the performance standards per Town Code Chapter 208-64 F." Lloyd Chair Cuciti, on March 26, 2026, directed that additional information be requested from the applicant covering "site plan requirements, dust, traffic, noise, vibration and similar impacts." Functionally identical lists. The applicant's response in both records has been qualitative rather than quantitative — e.g., the August 18, 2025 EDP response in Clifton Park asserted that the operation would produce noise "similar to the existing heavy diesel engine vehicle traffic currently in use on Route 9," without attached acoustic study or modeled decibel levels.

B. Items Surfaced in Clifton Park That Have Not Yet Surfaced in Lloyd

Clifton Park's twelve-plus months of review have surfaced concerns and produced disclosures Lloyd has not yet developed. These include:

- **Throughput.** CME Traffic Assessment dated August 20, 2025 disclosed that the Wilton Bonded Concrete plant generates 138 daily trips at maximum operations and projects 108 daily trips for

1910 Route 9, with 18 AM peak-hour and 16 PM peak-hour trips. Lloyd has not yet been told whether its plant produces 20 yards or 2,000 yards a day.

- **Operating hours.** The CME Traffic Assessment disclosed weekday hours of 5:00 a.m. to 6:00 p.m. and Saturday hours of 6:00 a.m. to 1:00 p.m. Lloyd has no comparable disclosure.
- **Water use.** The applicant disclosed approximately 10,000 gallons of well water per day. Lloyd's narrative says only "well water." The Clifton Park ECC also flagged a separate Town Code provision requiring connection to community water where available — a concern Lloyd has not surfaced.
- **Fuel storage.** Clifton Park ECC noted that the proposed 10,000-gallon fuel tank must be aboveground due to the Primary Aquifer. Lloyd's record does not address fuel storage.
- **Stormwater regulatory framework.** Clifton Park's stormwater reviewer flagged (i) the Multi-Sector General Permit (MSGP) for Standard Industrial Classification 3273 with operational TSS and pH monitoring, and (ii) the requirement that the project be designed to new-development stormwater treatment standards, not redevelopment, because of >125% impervious-area expansion and complete change of use. Lloyd's record does not address either.
- **Air quality.** Clifton Park reviewers asked whether the operation is subject to air emissions permitting under 6 NYCRR Parts 200, 201, 211, and 212. The applicant's response was that "no emissions permitting is required." Lloyd has not asked this question.
- **Wetland and habitat.** Clifton Park surfaced wetland delineation by EDP biologist Thomas M. Ward (April 2025), identification of a defined perennial stream, and habitat assessment for Karner Blue and Frosted Elfin (May 19, 2025).
- **Stormwater proximity to Class A waters.** Clifton Park's ECC requested a Full SEQRA review and comprehensive disaster management/spill response planning because of the project's proximity to the Dwaas Kill.
- **SEAF inadequacy.** Clifton Park staff effectively required the applicant to convert from a Short EAF to a Long EAF. Lloyd's application is at Short EAF (Part 1 only) and has not yet been required to convert.
- **Public process.** Clifton Park has received a community Change.org petition opposing the project with over 2,000 signatures; a unanimous resolution from the Town's Open Space, Trails, and Riverfront Committee dated September 17, 2025 urging rejection or, alternatively, a Positive SEQRA Declaration with full EIS; and concerns raised by the Town's Environmental Conservation Commission. The Lloyd public process has not yet matured to an analogous level.

C. Issues Surfaced in Lloyd That Clifton Park Did Not Reach

The Lloyd Planning Board's March 26, 2026 discussion frames the use-classification question more directly than the Clifton Park record does: whether the use itself belongs in Light Industrial as a matter of zoning policy, rather than how to manage its impacts within the existing classification. Member Gordon's observation that "it isn't immediately apparent" the use fits Light Industrial, member Meltzer's questioning of what "objectionable" means, and Cuciti's direction to seek site plan/dust/traffic/noise/vibration disclosures — all before the application is agendized — represent a categorically different procedural posture than Clifton Park's, which proceeded through site plan review on the assumption the use is permitted as of right. Lloyd's subsequent drafting of Local Law A is the legislative expression of that procedural posture.

Part V. The Applicant's Procedural Posture

A. The SEQRA Posture in Clifton Park

The Clifton Park record reflects a consistent procedural pattern: a Short EAF treating the action as Unlisted; a push for early Lead Agency declaration to start the SEQRA clock; and reactive disclosure rather than volunteered disclosure. The applicant filed a Short EAF dated March 31, 2025, accompanying a conceptual site plan dated March 28, 2025. MJ Engineering's April 16, 2025 review letter characterized the project as "Unlisted" under Part 617 of the New York Environmental Conservation Law. Only after MJ Engineering's subsequent comments did the applicant convert to a Long/Full EAF, dated August 11, 2025 (Part 1) and submitted with the August 18, 2025 response letter.

The August 18, 2025 EDP response letter reflects, in its responses to MJ Engineering, a pattern of reactive disclosure: items not initially addressed (wetland delineation, listed-species habitat, FEAF responses, wetland documentation, government-agency permits) were filled in only after specific reviewer prompts.

B. A Substantively Identical Posture Now in Lloyd

Clemente's March 26, 2026 email to Chair Cuciti reflects the same procedural posture at an earlier stage. By stating that "the Planning Board has accepted the application, cashed our application fee and escrow checks, and presumably has commenced its review," the letter lays a foundation for arguing the Board has begun its SEQRA review and should formally declare its intent to serve as Lead Agency — starting the SEQRA clock. The letter's reference to "commence the SEQRA process (i.e., Circulate Notice of Intent of the Planning Board to Serve as Lead Agency)" is the explicit statement of the goal. The Lloyd application has been filed as a Short EAF (Part 1 only), as in Clifton Park.

The letter also seeks to channel the additional-information request through formal letterhead correspondence rather than informal staff dialogue, which has the practical effect of converting open-ended technical inquiry into discrete written exchanges and slowing reviewer-driven probing. The combination tilts the procedural posture toward a process in which the Board declares Lead Agency, the

SEQRA clock starts, and the applicant supplies what it chooses to supply on its own pace, with the burden on the Town to articulate gaps rather than the burden on the applicant to demonstrate completeness.

Lloyd's Chair declined the procedural posture requested by the applicant. Cuciti directed that additional information be requested before agendizing the application and stated that the goal "is to have a more complete application to make meetings more worthwhile."

C. The Apparent Absence of a Formal Zoning Determination in Clifton Park

The Clifton Park record produced under FOIL contains no document evidencing a formal written use determination or zoning interpretation issued by the Town's Zoning Administrator under any code-prescribed procedure. The record contains:

- **Scott Reese's April 18, 2025 review comments.** Reviewer comments entered through the SPR25-000016 Concept submission record, stating that "Per Town Code Chapter 208-64 B.(1) Assembling/fabrication, processing is a permitted use" and offering a parenthetical visit-based observation. These are review comments on a site plan checklist, not a written use determination addressed to a use-determination application.
- **MJ Engineering's April 16, 2025 letter.** The peer reviewer's letter explicitly stated that the bulk processing plant "may be a permitted as of right use under 208-64(B)(1) processing of products but should be verified by the Town's Zoning Officer."
- **EDP's August 18, 2025 response letter.** The applicant's response represented that "The Town's Zoning Officer has confirmed that the proposed land use is permitted in the LI-2 Light Industrial Zoning District" — without attaching, citing, or producing a written determination.

The applicant's representation that the Zoning Officer "confirmed" the use is not corroborated by a formal written instrument in the FOIL record produced to date. Review comments on a site plan checklist are not the same instrument as a zoning interpretation rendered on application; they do not carry the same procedural weight or appeal rights. To the extent a formal written determination exists outside the FOIL record produced, RRD respectfully requests that it be identified and made part of the public record.

Part VI. Applicability of the Lloyd Materials

A. Cross-Verification of Operational Representations

Because the operational narrative submitted to Lloyd is substantively the same as the one submitted to Clifton Park, any operational claim the applicant has made in one record can be cross-referenced against the other. Items disclosed only under reviewer pressure in Clifton Park — daily trips, peak-hour trips, water gallons per day, fuel-tank capacity, operating hours — are absent from the Lloyd narrative

entirely, demonstrating that those disclosures were the product of specific reviewer probing rather than standard volunteered disclosure.

B. Substantive Validation of the Use-Classification Concern

The Lloyd Town Board's drafting of a local law to classify concrete batching plants as Heavy Industry is an independent, contemporaneous determination by a peer municipality — evaluating the same applicant, same engineer, and same operational template — that, as a matter of legislative judgment, the use does not belong in Light Industrial. That determination is evidence supporting the substantive concerns raised in the Clifton Park record by the Town's Environmental Conservation Commission, by the Open Space, Trails, and Riverfront Committee, and by members of the public, and supports the position that the use classification on which the Clifton Park site plan review currently proceeds is at minimum contestable.

C. Procedural Calibration

Lloyd's procedural posture demonstrates an alternative way to handle the same applicant. By declining to agendize the application until additional information is provided, by directing substantive disclosures before the SEQRA clock begins, and by separately drafting a local law to address the underlying classification ambiguity, Lloyd is conducting a more rigorous front-end review. The contrast highlights that Clifton Park's review proceeded on the assumption that the use is permitted as of right — an assumption that, in the FOIL record produced to date, rests on review comments rather than a formal written determination.

D. Specific Items the Lloyd Materials Suggest Warrant Verification

Based on the comparison, the Lloyd materials surface several items RRD respectfully suggests warrant attention in the Clifton Park record:

- Whether the Town of Clifton Park Zoning Administrator has issued a formal written zoning determination or use interpretation, distinct from review comments on the site plan checklist, with respect to the proposed concrete batch plant.
- Whether the proposed use should be reviewed under 6 NYCRR Section 617.4 as a Type I action (rather than Unlisted) given the project's scale, proximity to the Dwaas Kill, and Primary Aquifer setting — a question Lloyd is implicitly raising by drafting a local law that names this use as Heavy Industry.
- Whether the Multi-Sector General Permit for SIC 3273 has been formally addressed, including operational monitoring requirements for total suspended solids and pH.
- Whether the applicant's representation that "no emissions permitting is required" under 6 NYCRR Parts 200, 201, 211, and 212 has been independently verified by the NYSDEC.

- Whether the noise, dust, and vibration claims in the applicant's narrative are supported by measured or modeled data — a question Lloyd has flagged through Member Meltzer's explicit questioning of "objectionable amount of" as an enforceable standard.
- Whether the operating hours and daily throughput figures disclosed to Clifton Park (108 daily trips, 5 a.m. to 6 p.m. weekdays) are consistent with what is being represented or implied to Lloyd.

Part VII. Conclusion

The Lloyd materials are a contemporaneous record of a peer municipality, evaluating the same applicant and the same operational template, reaching different conclusions and following different procedural paths than Clifton Park's site plan review has followed to date. The substantive concerns raised in the Clifton Park record are independently validated by the Lloyd Planning Board's March 26, 2026 discussion and by the Lloyd Town Board's subsequent drafting of a local law that would expressly classify concrete batching plants as Heavy Industry.

These developments are also part of a broader regional regulatory response. The Town of Clifton Park Town Board opened a public hearing on April 21, 2026 on a proposed moratorium on concrete batch plants — a hearing that remains open and is currently under review by the Saratoga County Planning Board pursuant to General Municipal Law §239-m. The Town of Halfmoon — in which a portion of the 1910 US Route 9 sitework is planned — has scheduled a public hearing for May 20, 2026 on a moratorium covering asphalt, concrete cement plants, and pesticide manufacturing. Three municipalities are independently arriving at the same conclusion that this use category warrants a deliberate regulatory response.

RRD respectfully requests that this brief and the underlying Lloyd documents be incorporated into the official record. To the Clifton Park Town Board, RRD respectfully requests enactment of the pending concrete batch plant moratorium upon close of the public hearing and completion of the County review. To the Clifton Park Planning Board, RRD respectfully requests that the application be held in abeyance pending Town Board action on the moratorium and that, in any SEQRA classification decision, the Lloyd Town Board's independent legislative classification of concrete batching plants as Heavy Industry be considered as evidence supporting a Positive Declaration.

Sources and Documents Reviewed

Documents obtained by RRD through a Freedom of Information Law (FOIL) request to the Town of Lloyd:

- Town of Lloyd Planning Board Application package, dated March 10, 2026 (cover application form, Project Narrative, Bargain and Sale Deed, Short EAF Part 1 dated March 5, 2026, EAF

Mapper Summary Report, NYSDEC Letter of No Jurisdiction dated June 24, 2025, FEMA Flood Hazard Areas figure, Town of Lloyd Escrow Account Consent).

- Town of Lloyd Planning Board Regular Meeting Minutes, March 26, 2026.
- Email from Luke Clemente to Chair Cuciti, March 26, 2026, 8:33 a.m.
- Draft Town of Lloyd Local Law A of 2026 ("2026 Zoning Code Amendments"), file created April 6, 2026, last saved by David Gordon April 6, 2026; filename references March 24, 2026.

Documents obtained by RRD through a Freedom of Information Law (FOIL) request to the Town of Clifton Park (selected, by topic):

- Permit Summary, SPR25-000035 (Preliminary), Application Date August 18, 2025.
- Town of Clifton Park staff review comments (Zoning, Stormwater, ECC, Planning), dated April 18, 2025 and September 5–8, 2025.
- MJ Engineering review letters dated April 16, 2025 and September 4, 2025.
- Environmental Design Partnership response letter to John Scavo, Jr., dated August 18, 2025.
- CME Associates Traffic Assessment dated August 20, 2025.
- Long Form Environmental Assessment Form Part 1 dated August 11, 2025.
- Town of Clifton Park Open Space, Trails, and Riverfront Committee Resolution adopted September 17, 2025.
- Public correspondence (September 9, 2025 Planning Board meeting submissions; September 23, 2025 letter from Elisa Gallaro referencing community petition).

Submitted for the official record by Residents for Responsible Development. Document is based on materials obtained through Freedom of Information Law (FOIL) requests to the Town of Lloyd and the Town of Clifton Park.

Tab 18

May 1, 2026
Tab 18

NEW YORK STATE | Department of Transportation

KATHY HOCHUL
Governor

MARIE THERESE DOMINGUEZ
Commissioner

MICHAEL G. ARTHUR, P.E.
Regional Director

May 1, 2026

John Scavo Jr., Planning Department Director
Town of Clifton Park
Department of Planning & Zoning
1 Town Hall Plaza
Clifton Park, NY 12065

Re: RT 9 Batch Concrete Plant
1910 Route 9
Clifton Park, NY 12065

Dear John:

The New York State Department of Transportation has reviewed the SEQR documentation received per the correspondence dated **February 26th, 2026,** and offers the following:

1. The NYSDOT acknowledges the **NYS Department of Conservation** will be designated as the Lead Agency for this environmental review. NYSDOT believes we are an **Involved** agency under SEQR.

2. The project proposes constructing a ready-mix concrete plant on a 19.4-acre parcel on NYS Route 9. The proposed construction will include a ground level aggregate bin system, conveyor belt, enclosed elevated aggregated bins containing sand/stone, round steel cement silos, sand and stone pile storage areas and an on-site stormwater management system. The project will disturb 3.9 of the 19.4-acre site, creating 1.5 acres of impervious surface. Currently the parcel contains a residential home that will remain after construction and is zoned as LI-2 "Light Industrial."

   According to the 2006 Town of Clifton Park Comprehensive Plan, one of the main strategies for promoting economic development is "focusing business interests on the community commercial land use to the Exit 9, Route 9 and Route 146 corridor" (pg.24). This project helps accomplish this goal by constructing a new business within this corridor.

   However, although this project helps support one of the economic strategies of the comprehensive plan, there are still zoning, environmental, and public concerns that make this project currently misaligned with the town vision established in the comprehensive plan.

Clifton Park Zoning code indicates that "Assembling/fabrication, processing or light manufacturing of products" are acceptable if they do not result in "any noxious noise or odor outside the district and does not have a deleterious effect on the air or water quality" (208-64B). The Full EAF indicates that noise exceeding ambient levels may be produced (pg. 8), that the plant would be a site for air emissions (pg. 6) and that the site contains wetlands/waterbodies that are considered quality-impaired by NYS (pg. 11).

There are environmental concerns with the proposed project as well. The Dwaas Kill River is identified to be a quality-impaired waterbody by NYS and wetlands/waterbodies are contained and adjoin the project site. These waterbodies, along with the increase to impervious surface, presence of steep slopes, and the industrial nature of a cement plant lead to concerns about further water contamination/pollution (EAF, pg. 11). Air pollution is also a concern as the project reports various emissions stemming from the operations equipment (forklift, concrete mixers, etc.) and the batch plant itself (EAF, pg. 6). Lastly, there are endangered/threatened species or their habitats within the project area, including the Frosted Elfin and Karner Blue Butterfly (pg. 12).

Although there are significant environmental concerns, the NYSDEC acting as Lead Agency will be able to determine if the project is appropriate and oversee proper construction along with any mitigation necessary.

3. Given the concerns listed above, there are potential improvements that can be implemented to better align with the town's comprehensive vision, zoning law, environmental standards, and community character. Please see below suggestions for your consideration:

    a. Based on setback requirements, proposed development could be moved closer to Rt 9 to create a better buffer between the concrete plant and the Dwaas kill.

    b. Evaluate the installation of a "STOP" sign per MUTCD standards at the access drive leaving the facility.

    c. Installation of bike racks at the main facility offices.

    d. Evaluate the installation of directional arrows per MUTCD standards, indicating traffic flow within the site.

    e. Consider installation of "dark-sky" compliant lighting to reduce light-pollution and better screen the lighting of the facility.

4. The NYSDOT received an lead agency request, owner authorization form for site plan/subdivision review, a planning board resolution & final planning board meeting packet, Full EAF, and site plans via mail on April 21, 2026.

5. Please note that NYSDOT does not allow new development to directly discharge stormwater into the highway stormwater management system.

6. A NYSDOT Highway Work Permit (PERM 33-com) will be necessary for any work within the State right-of-way along Route 9.

7. In anticipation of the Highway Work Permit, a Traffic Impact Study may be required.

8. A PERM 32 NYSDOT permit application will be required for any utility work in the NYSDOT right-of-way. Please submit documentation the Town will take ownership of any proposed utilities in NYSDOT right-of-way.

If you have any questions pertaining to the Utility Permit process or requirements, please contact Matt Haggerty at Matt.Haggerty@dot.ny.gov or (518) 461-3669. For questions about the Highway Work Permit process and requirements, contact Wyatt Martin, Regional Permit Engineer at Wyatt.Martin@dot.ny.gov or (518)-457-4745.

Sincerely,

Greg Wichser

Greg Wichser, P.E.
Regional Program and Planning Manager

cc: Wyatt Martin, Region 1 Traffic
Matt Haggerty, Region 1 Construction
Paul Korowajczyk, Resident Engineer, Saratoga County
Brian Sleasman, Region 1 Design